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THE GLOBE ARGUMENT FOR EXCLUDING MEXICAN SILVER-LEAD ORES.

We have received the following interesting communication in reply to a letter soliciting their card in the usual course of business. This reply is no hasty effusion, but the deliberate outcome of a month's consideration.

DENNIS SHEEDY, Pres. and Gen. Man. — A. CHANUTE, Vice-Pres. — J. M. WALKER. Sec. and Treas. — M. W. ILES, Supt.

Address all commnnications to the company. THE GLOBE SMELTING & REFINING COMPANY, DENVER, COLO., August 5th, 1889.

S. Braeunlich, Secretary Scientific Publishing Company, 27 Park Place, New York, N. Y.

DEAR SIR: Replying to your letter of June 25th to our Dr. Iles, in which letter you request this company to advertise in the ENGINEERING AND MINING JOURNAL, we beg to say that just so long as the ENGINEERING AND MINING JOURNAL maintains its present position on the matter of classification of lead ore from Mexico, just so long this company will refuse them any support whatever.

In conclusion, we beg to suggest that the ENGINEERING AND MINING JOURNAL is doing itself an immense amount of harm among Western miners and smelters by the articles it has published, and is publishing, in reference to this matter. We are,

Very truly yours,
THE GLOBE SMELTING & REFINING COMPANY.
A. CHANUTE.

Vice-President CHANUTE evidently holds the shameful belief that every one's opinions are for sale to the highest bidder. The ENGINEERING AND MINING JOURNAL advocates what it honestly believes to be for the best interests of the mining and metallurgical industries, and its belief is based upon a pretty thorough familiarity with their technical and trade features and the history and causes of their growth or decline in the past.

It advocates what we are convinced will best promote the development and prosperity of these industries and the welfare of those engaged in them, not alone as smelters and mine owners, but as miners and laborers as well. "The ENGINEERING AND MINING JOURNAL is always fair," as our esteemed contemporary, the *Mining Industry*, recently did us the honor to testify. It is quite open to conviction, and not above changing its opinions when convinced by honest and well-supported argument. We cordially invite Mr. CHANUTE or the Globe Smelting and Refining Company to furnish us with such arguments, and they will be published and respectfully discussed in these pages; but the opinions of the ENGINEERING AND MINING JOURNAL are not for sale, and we have a very poor opinion of the cause that seeks support by bribery, and an utter contempt for those who act as though they believe principle and honor are subjects for barter, and that they have only to offer "boodle" to purchase the dishonest advocacy or equally dishonorable silence of any paper.

The policy that would put money in the pockets of the owners of a small number of mines or smelting works may be very far from being that which will best promote the general interest of the great industry of mining, or be for the benefit of the miners or laborers even of Colorado, much less those of the whole country, and to this we shall refer on another occasion.

A DASTARDLY OUTRAGE.

MR. WILLIAM H. SCRANTON, of Oxford, N. J., a member of the American Institute of Mining Engineers from the year of its foundation, and as highly esteemed professionally as he was personally beloved by his colleagues and friends, died on the 19th of June last. During the following ten days, and before his grief-stricken widow could address herself to the sad labor of arranging his affairs, his private office (separated from his residence by shrubbery) was broken open by a thief, who, leaving untouched his valuable instruments and books, took only his professional manuscript memoranda. These, the fruit of many years of experience and systematic record, were arranged in cases, under the titles: "Re-working Steel Rails, Correspondence"; "Cost of Product, Oxford"; "Blast-Furnace Details"; "Blast-Furnace, Correspondence"; "Roll-Trains, Correspondence"; "Culm-Burning Devices"; and "Magnetic Surveys." Besides these, his notebooks for years, containing drawings, specifications and calculations concerning various parts of the work he had conducted at Oxford, were carried away, together with his diary and other private papers and letters.

The office had been entered by breaking through a shutter and window, and the traces of this operation had been almost completely effaced, though it was betrayed by tool marks, fresh putty, and other signs of recent handling.

Mrs. SCRANTON has offered a reward of $50 for any information which will lead to the return of the papers and the conviction of the thief. This has been done with but slender expectation of a recovery of the property, but in the hope that it may be thus, at least, rendered valueless to the rascal who purloined it. A man capable of utilizing for himself the contents of such documents would not be so mean a villain as to steal them. It is more likely that some person, not an engineer, but aware of the value which engineers place upon the unpublished records of actual experience, took them with the intention of selling them, and in the fancy that they would not be missed by the family. If such be the fact, members of the profession are hereby notified of this mean crime, and requested for the sake of their late brother and for the honor of their profession, to aid in the detection of the criminal should he betray himself by any attempt to dispose of his plunder.

A BETTER SYSTEM OF COAL MINING.

On another page we give a very interesting description of the long wall withdrawing system of coal mining, which for many years has been applied with great success in some of the largest European mines, and which offers great advantages over the system by chamber and pillar work now in use in this country.

We have so often called attention in these pages to the wastefulness of the systems of mining we are now practicing that our readers are familiar with the fact that in our anthracite mines we are losing from 40 to 60 per cent of all the coal, and in many of our bituminous coal mines, the loss, though much less, is still disgracefully large. It seems, indeed, almost incomprehensible that in this country, where intelligence and progressiveness are our boasted characteristics, the system of coal mining has remained unchanged from the time our mines were first opened, and, unfortunately, when first adopted, was not even then the best system known. We have made immense progress in the mechanical appliances for coal mining and in all the plant at the mines, so that we are enabled to break coal cheaply and handle it with unequaled rapidity and economy, but we have tenaciously clung to the old chamber and pillar system of mining where the loss of coal is enormous, and under which this loss cannot be materially reduced.

Nothing short of a radical change in system will enable us to put an end to this enormous waste, and certainly the method which Mr. GRESLEY advocates will, where applicable, prove a very important improvement on the present system. Nor need any one be frightened at the idea that in adopting it he is making some untried experiment, for the system of long-wall withdrawing has been in constant and successful use for half a century in Europe, and the new features in its application as described by Mr. GRESLEY, consisting chiefly in bringing the roads up as the working face advances up the pitch, are in successful use in England.

The Cumberland district of Maryland, the Hocking Valley district of Ohio, some of the Colorado mines, the Flat Top mines in Virginia and portions of the Wyoming Valley anthracite field occur to us as among the cases well adapted for the successful application of this system of mining. The opportunity is now offered our mine owners to test this method under the great advantages which practical experience in its application and a wide acquaintance with other systems of mining afford.

Mr. GRESLEY offers his professional services to those who desire to investigate and introduce this system, and we trust our mine owners, whose interests in lessening the waste of coal in mining are enormous, will give it a full and fair trial. Mr. GRESLEY can be addressed care of this office.

THE DANGERS FROM DIRECT AND ALTERNATING HIGH-TENSION ELECTRIC CURRENTS.

There has seldom been a more interesting and amusing manipulation of the public through the press than has been performed during the past year or two by Mr. HAROLD P. BROWN, electrician, in the interest of his clients, the Edison Electric Light Companies. To appreciate it fully one should understand the situation which made Mr. BROWN'S services desirable. This may be outlined in few words.

The Edison party, as is well known, is specially interested in incandescent lighting by means of the Edison system, in which the currents have relatively low intensity and large quantity, and the lamps are set in multiple arc instead of series. Throughout such an Edison system connected with a central station the intensity of current varies little, but the quantity is diminished rapidly as the number of lights is increased. As all electricians are aware, this limits the distance from the station to which the system can be extended, three-quarters of a mile being, we believed, about the maximum of the ordinary Edison practice in cities. The conductor is thickest near the station, and is reduced in diameter as the quantity of the current is diminished by the consumption of energy in successive sets of lamps. The advantages of the method are the ease with which the heavy conductors are insulated and the direct current is handled. Its disadvantages are the limitation above-mentioned, which requires a multiplication of stations, and the expensive character of the station plant and the conduits and conductors.

A dangerous rival of this system has arisen in the method of employing the "alternating" current, adopted by the Thomson-Houston and Westinghouse companies, which enables currents of relatively high intensity to be transmitted long distances, and "converted," as required, into currents of low potential for local use. The advantage of this method is its cheapness. Its principal disadvantage is, that it has not as yet been successful in the distribution of *power*. For the "conversion" of an alternating current gives another alternating current; and motors need direct currents. It is safe to prophesy that some way will be found to overcome this difficulty. But meanwhile it exists; and the alternating system suffers in consequence.

As to safety, the account is nearly even. Each current presents its own elements of danger. The alternating current of high potential is often fatal to animals and men who by accident receive it. The direct low-tension current is usually harmless in this respect; but, on the other hand, it is more liable to cause conflagrations. For the accidental increase of resistance may develop incandescence in the house conductors. This danger is by no means small where buildings have been carelessly wired by contractors, and where the leakage of the current, impairing the light of the lamps, is remedied by increased velocity of the dynamo, crowding an excessive quantity over a conductor too small to carry it.

But direct currents are by no means always low in intensity. The pressure of economy has brought about a progressive increase in that respect, until 2,000 or 3,000 volts are not infrequently carried in direct currents for arc-lighting purposes. Consequently, as between direct and alternating currents merely, the question of safety to life is narrowed to the proposition that the latter are more certainly fatal with a given number of volts, or become fatal with a smaller number of volts, than the former; while it is undoubtedly the case that the currents of either class of the intensities now commonly in use are pretty certain to kill ordinary people under ordinary circumstances. It is like the old controversy of coal-gas *vs.* carburetted water-gas. Blow out your gas, of either kind, when you go to bed, and you will be dead in the morning. Probably you will have died a little sooner if the gas was water-gas.

Since it is not healthy to receive intense electric currents of any kind, the public must be protected from accidental contact with them. Whether they are more or less fatal is really of small importance. The poisonous nature of coal-gas did not prevent its introduction, or the ultimate establishment of such safeguards in the use of it, and of such general intelligence concerning it; that it is now far safer than kerosene or the earlier illuminating fluids. The more poisonous character of water-gas did not prevent it from supplanting coal-gas. The explosive force of dynamite has not checked its use. In fact, nothing that offered superior effectiveness and cheapness has ever been suppressed because it was dangerous.

This principle the Edison people were made to realize when the Westinghouse Company sprang into vigorous life, and within two years of its formation captured a hundred cities and towns in spite of its elder competitor. For electric lighting, the alternating current is the system of the future, because it furnishes the cheapest means of conveying electrical energy. Moreover, it could be so installed as to present no public danger, and, perhaps, on the whole to be safer than any other.

Evidently the crisis was serious, and as the right man always arises when really needed, Mr. BROWN appeared. His first utterances in the newspapers were directed, if we remember correctly, against all high-tension currents and their inefficient insulation in overhead conductors; but the alternating currents were soon singled out as presenting especially awful features.

The arc-lighting companies of New York foolishly played into Mr. BROWN'S hand by their course on the underground question—declaring the impracticability of proposed underground systems, yet making no serious efforts to solve the problem for themselves. Their contention was substantially that they could not operate underground, and hence must be allowed to remain above-ground. The EDISON people, who have an excellent underground system, perfected in every part by the genius of Mr. EDISON and the skill of first-rate mechanics, seized the opportunity to extend their operations in this city and Brooklyn; and Mr. BROWN ingeniously prolonged the situation which so neatly eliminated the economical element from the competition.

His famous experiments to show how much more fatal was the alternating than the direct current to dogs, begun before the New York Board and continued at the EDISON laboratory, were not as conclusive, perhaps, as they should have been. They were somewhat severely criticised by experts. But they served to impress the public, and they were eagerly printed by the newspapers, which is not always the case with scientific inquiries not so sensational.

Mr. BROWN'S great opportunity, however, came when a method for the electrical execution of criminals was desired. He got the contract, and took pains to emphasize the fact that he had bought for his dread purpose one of the awful alternating WESTINGHOUSE machines. Whether he is at the bottom of the prolonged inquiry which has been carried on for some time past to determine the certainty of his proposed method we cannot say. But nothing could have better served his purpose of producing a mass of testimony to the dire effects of the alternating current upon the human anatomy.

We do not sympathize with the attempts of some journals to make Mr. BROWN odious by comparing him with a volunteer hangman. On the contrary, since execution by electricity has been devised as a humane substitute for the gallows, we do not see why Mr. BROWN should not feel that in perfecting the means he is performing a praiseworthy act of philanthropy. Such was notoriously the feeling of the inventor of the guillotine.

Judging Mr. BROWN, however, by his publications only, we think it probable that he is neither a philanthropist nor a monster athirst for human sacrifice. It seems more likely that he is quietly chuckling over the clever manœuver by which he has identified WESTINGHOUSE and Death. *

ON THE FORMATION OF ENGLISH JOINT STOCK COMPANIES.

The methods of "floating" joint stock companies differ with the character of the schemes. In the case of good and really trustworthy enterprises, little difficulty or expense is experienced, owing principally to the fact that such class of business is generally introduced to the public by firms of undoubted integrity; while, on the other hand, all second and third-rate properties fall into the hands of the unscrupulous promoters, who depend entirely on the expenditure of large sums in all kinds of underhand inflation, through the medium of high colored circulars and nefarious advertising in the daily papers. It is to these latter we would call the attention of our readers.

If the confiding public could only step behind the inner curtain of the London Financial Agent for but one short day, during the period of what is termed "floating," how closely would its purse strings, be tightened, and how deep would be its resolution never to open, nay, never to so much as admit, one of those thieving, lying prospectuses to cross the thresholds of its homes.

The offices of the London promoter are generally located in some well-known financial centre, and are, as a rule, finely furnished and eminently prosperous in appearance. To the uninitiated the number of small waiting rooms, and numerous passageways and outlets will be a surprise, but these are all important accessories in the manufacturing of mining enterprises. Secrecy, mystery and deception are practiced as an art, and they are applied without stint to produce illusions, and efforts are made that those not acquainted with the ways and means of such business places shall be deeply impressed, while waiting for an interview, by the varied low murmurings of conversation, and yet they actually see nothing or note anything that can be understood. Now and then one hears the mention of a vast sum of money or the percentage of mineral in ore, and again a loud and hearty laugh will break on the general hum. But stretch the imagination as you will, you can make nothing of it. The fact is, the visitor is purposely placed under fictitious influences intended to create impressions of the great financial importance of the place, and is generally left for twenty or thirty minutes to thoroughly digest them before he is interrupted in the contemplation of the mystery by a well dressed and well mannered personage, who profusely apologizes for keeping him waiting with a "So much business this morning. South American mail day, you know!" etc., etc. The matter of the visit is explained, and if it offers the remotest chance of leading to fair business in the future, an appointment is made to meet Mr. B., the head of the firm, at such and such a time, when the affair will be properly looked into and discussed. The visitor leaves, and the chances are that his proposal has been discussed and de-

cided on within the next thirty minutes. If there is "anything in it" he will meet with all proper attention, and be made to receive, if possible, a little more "impression." If there is "nothing in it," he may as well be made use of, and allowed the pleasure of running up and down the office steps three or four days a week, for it is well to keep clients with anxious, longing faces haunting the office day after day, as it creates a favorable impression outside. Besides, in the end, there may be always a chance of doing something with even the most worthless speculation, should nothing more suitable turn up.

The promoter, or financial agent, as he is usually termed, is a nondescript being, generally comprising three or four distinct individualities, into which he is metamorphased, according to the circumstances in which he finds himself. At times his rôle is deep, meditative and unapproachable. At others it is frank, easy and almost juvenile in its gayety. He is always carefully dressed, and his private room is a mixture of lavish luxury and business combined.

In opening a confidential interview (they are all confidential, as the "impression" inculcated from the first entrance to the "sanctum" distinctly intimates this), the caller has all the introductory talking on his side, and if he be a keen observer, will at once notice how little attention is paid to what he is saying, and how much is meted out to his general appearance by the quick, sharp, glass-covered eyes that are never for a moment removed from his. The business having been introduced, a short but well-veiled cross-examination follows, all of which seems to lead to one end, viz., the financial standing of the applicant. Should this prove satisfactory, a generous offer almost at once follows of doubling up the price first named for the property, on condition of the seller sharing a certain amount of the expenses of "floating." This is accompanied with a long plausible and airy account of the wonderful connection the firm has in the moneyed market, and the numberless facilities it commands on the stock exchange for promoting the most colossal enterprises, and the interview terminates with a general flourish of dry sherry or champagne. On the other hand, should the financial status of the applicant not be satisfactory, or if he is unwilling to share in the expenses of the "Float," the "boot is immediately placed on the other foot," and the price and terms of payment are reduced proportionately, after thorough explanation of the immense risks the firm is about to be called on to take at such an unsatisfactory stage of the market, etc., etc. An appointment in either case having been made for the next day for the purpose of culminating the purchase, a bell is touched and a respectable young man appears and lead the owner of the half disposed of property through a labyrinth of passages, always with a view to create "impression."

The system of purchase is simplicity itself. Mr. J., a friend of the firm, *i. e.*, generally a runner or regular employé, is brought forward, and in proper documental form undertakes to make payment in full, on or after such and such a date the amount agreed on by Mr. B , agent aforesaid, etc., etc. Mr. J. is, in fact, quite an irresponsible personage, but is introduced with such tender deference to his importance, and acts his part so well, that the "impression" takes firm hold, and the seller begins to think that he is really a most fortunate fellow in being placed among such strong financial and genial friends. Dry sherry and cigars naturally follow.

Forming the board of direction! What a stupendous undertaking! And yet how simple! It is almost unnecessary to explain that a very large portion of the members who are formed in these boards of direction are quite innocent of what they are called on to do. and it would be most wrong and unkind to associate them with the willing offenders who in full knowledge are aware of their surroundings. The *modus operandi* is to hunt up in the clubs some gentlemanly and well-known society man, who is bought "horse, foot and artillery," by our friend, the financial agent. The former has it intimated at his club that he has "something in the city." Inquiry into its character is not made, as among themselves he is generally pronounced a "good fellow." He is suave, unsuspected, of good family, and screens himself behind a well-filled purse and city mystery. In truth, he is a thorough blue-blooded scamp! Such a man is one of the great resources of the promoter, and the higher the "scamp" stands in social position, the better is his pay and more effective are his services. By him a board of directors is readily secured of really well known names constantly before the public. The primary board, after the formation of the company, is soon got rid of, and is replaced by men better suited to the operators. Its value as to personal reputation ends with the issue of the prospectus.

Next to follow comes the legal work necessary under the act, and it would be needless to state that every precaution is taken to protect the promoter against any misfortune that might occur, neglecting the interests of the inventors as far as may be.

It must be said that now matters in this respect are not nearly so bad as they were some years ago, the liability act having been considerably changed for the better protection of inventors. The firm generally employs the same legal gentleman, and as he is well paid, he perfectly understands what is required of him.

Newspaper men must now be "got at" and liberal terms made for advertising in their columns. This work is placed in special hands and requires the expenditure of a considerable sum for quiet little dinners, etc., etc. Not unfrequently direct money presents are hinted at and given for a good notice in the financial columns of important daily papers. It is surprising to see the amount of money that is expended for advertising these schemes in the daily papers throughout the kingdom. While the lailies of all the large cities must be secured, their smaller country "brethren" are by no means forgotten, as they come in touch with a very desirable class of investors, such as farmers, small trades people, school teachers, retired naval and army men. all of whom must, in some manner, be prepared for the deluge of prospectuses which are to follow in the footsteps of the newspapers.

By this time general meetings of the board of direction take place each day. and the farce of discussing the prospectus and the reports of experts goes on right merrily to the accompaniment of dry sherry and sandwiches.

It is almost pitiful to behold the number of truly worthy and kindly old gentlemen that are simply led by the nose for the purpose of deceiving their fellow creatures. All have qualified as to shares, as each has made a mysterious visit to the "sanctum" of Mr. B., where a little private arrangement has been gone through, which, of course, no one is ever to know anything about! Should any member of the board seem to have a tendency to be guided by his own judgment and not by that of the promoter, he is liable to make things very unpleasant for himself, as there are always two or three special friends of the promoter purposely on hand to make short work of the perpetrators of any such breach of discipline. The best means to put down such objectionable members, is by creating jealousy among the others. This is easily done by a whisper to Colonel D—— that General L—— seems to wish the entire command of affairs. Naturally the colonel's back gets a little more stiff, and by properly humoring his self-importance, he soon is made a very useful member, and as others are being treated to the same dose, the poor general, who is the only independent member of the board, gradually becomes aware that a minority of one is not conducive to his comfort, and very properly, as a rule, throws up his membership. However, with the aid of good wine, pleasant conversation, and great hopes of improving their bank accounts, few difficulties arise among the directors, and when all is thoroughly cut and dried the edict is pronounced, and the prospectus is launched on the devoted public, which has by this time been fairly prepared by the newspapers.

Many an obscure man, living in some quiet little country place, has asked himself, "How in the name of all that is wonderful can they have found me out?" The answer is, by complete and costly search of every city, town, and hamlet of the three kingdoms, and the classification of all names under a system of good, likely, and indifferent. Every known directory is searched, the army and navy lists are exhausted, village postmasters are written to for complete lists of their neighborhood and well remunerated for their trouble. General directories are by these means compiled, and some have been known to hold as many as 800,000 names and to have cost as much as £20,000 the collection.

These directories comprise the real capital of the promoter, and require the undivided labor of at least two clerks to keep one in perfect order. Deaths and change of residence have to be noted, and not only the names, but the financial standing of each applicant for shares after an issue of prospectuses, to secure proper classification as to the worth of the name for future operations. The classes that are held in the highest esteem comprise retired naval and military officers, small land-owners, well-to-do farmers, country inn-keepers, clergymen of all denominations, doctors, druggiste, maiden ladies, school-teachers of both sexes and small tradespeople of every description. This is the "grist" that comes most surely to the promoter's "mill," and is it fact what he really depends on. The truly business class is useless to him, as it "knows too much." The innocent and needy, as always happens, are the chief sufferers.

The prospectus now fairly launched, fictitious stock market quotations are made use of and duly sent to the papers. Little more can be done but to wait patiently for three days, when the result of the thousands of mailed prospectuses may be expected to bear some fruit. It is an anxious time far Mr. B. and all connected with him, and the dry sherry is much relied on to keep failing spirits up to a proper pitch. Hangers-on keep dropping in for news, and ready money is by no means plenty. The hundred-and-one extra hands that have been taken on to write the addresses are, unfortunately, not all paid, and the managing clerk has a hard time of it "putting off" these persecutors. Mr. B. is not to be seen by any but a favored few, by whom his "sanctum" has been converted into a sort of general lounge and dry sherry room, the firm looks flushed and excited, and it takes many a "B. & S." to qualify the effects of the sherry. On the second day a constant "trot" takes place between the bank and the office, as a few straggling applications are coming into both places. The broker also sends a cheering message now and again, and sleepy eyes begin to take on a little brightness. A champagne cork may occasionall be heard to "pop," as things are really not looking bad for a

second day. Yes! the dear public is gradually coming to the rescue of the hard pressed crew, and to-morrow the noble vessel will be off the rocks, and hold her stately course to—Where? Ask the rescuing public twelve months hence!

CORRESPONDENCE.

We invite correspondence upon matters of interest to the industries of mining and metallurgy. Communications should invariably be accompanied with the name and address of the writer. Initials only will be published when so requested.
All letters should be addressed to the MANAGING EDITOR.
We do not hold ourselves responsible for the opinions expressed by correspondents.

Coal Cutting Machinery.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: The North of England Institute of Mining and Mechanical Engineers have appointed a committee to report upon the question of coal cutting machinery, etc.

I shall deem it a favor if any of your readers will furnish me (on behalf of the committee) with particulars, prospectuses, plans, etc., of any machinery used for cutting coal, and especially as to the names of collieries where coal cutting machinery may be seen at work. Yours faithfully,

NEVILLE HALL, NEWCASTLE-ON-TYNE, August 2, 1889. WALTON BROWN.

How to Find a Competent Manager.

EDITOR ENGINEERING AND MINING JOURNAL:

I was very much surprised at the great number of good, capable men who are qualified to fill the position called for now open to engagement.

I consider your paper a great advertising medium, as I received letters from all parts of the hemisphere.

I shall probably engage Mr. —— —— (one of our best-known and experienced mining engineers—ED. ENGINEERING AND MINING JOURNAL).

Accept thanks for the favor. Yours faithfully, D. F. S.

WAKEFIELD, Mich., August 10th, 1889.

A PROPOSED NEW METHOD OF MINING ANTHRACITE.

By William S. Gresley, M.E., F.G.S., England.

That there is deplorable waste in the mining of anthracite nobody can deny. The loss of coal in the ground is admitted to amount to 40 per cent or 50 per cent of the entire veins, in some cases more than this. This is principally owing to the system by which the coal is now mined, and so there is evidently room for some improved method of mining.

A good deal has been said or written as to what kind of method would be most likely to prevent or lessen this enormous wastage in working, and it seems to be generally admitted that if this loss is to be reduced to any great extent the present system (pillar and breast) must be replaced by some very different method.

The method which this paper describes is a *Longwall* one. "Longwall Limited" would perhaps be a better name to call it by, because the length of the working-faces seldom exceeds 500 feet on each side of the slope or haulage way.

It is not for one moment supposed or suggested that the method proposed would be applicable to all veins of anthracite and to all pitches or to every locality, for my opinion is that the present plan cannot be materially departed from where the pitch is heavy, without greatly increasing the cost of working. My chief contention is, that given a certain area of coal lying at a moderate angle, fairly free from faults, rolls, saddles and basins, and especially where the veins lie near together, or are very thick and contain a large proportion of slates or other refuse, and where the surface conditions are suitable, the yield of coal, or what is the same thing, the reduction of mine waste, and the life of the colliery, would be greatly increased.

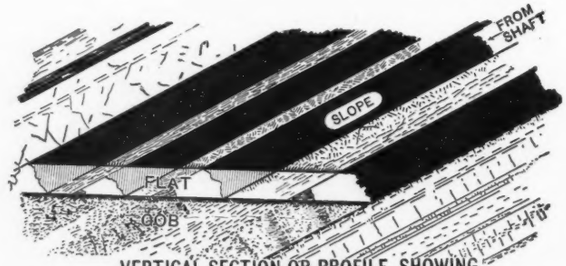
The proposed new method then involves certain radical changes, for we do away with gangways, chutes, airways, manways, etc. (at least in the manner in which they are made use of at present), and drive only such slopes or haulage roads, return air-courses, and other necessary inlets and outlets, and opening out levels, etc., as are required for commencing to get out the coal. It is *longwall withdrawing* that I would like to see tried, namely: that method which has the special feature of mining out the entire vein or veins in one ever-advancing, broad, or continuous face or series of faces, commencing at the most convenient lowest point of the tract to be worked (in the basin, if possible), and mining all out upward on the pitch in the direction of the shafts, tunnels, or other openings from surface, the course or lines of the working-faces being kept nearly on the strike, or at right angles to the dip of each and every vein or bench. Thus, as soon as the tract or section of the mine intended to be so worked has been suitably laid out with slopes, airways, etc., coal-getting commences all along the line and on the level course at the deepest or furthest point inside decided upon, and in as many different veins, or splits of one vein, as thought desirable (depending upon circumstances to be more particularly described further on), and is regularly, quickly, and vigorously carried on, keeping the faces or walls nearly parallel to one another, and of course as receding just as fast as the coal is mined out and removed, and the refuse thrown behind. All coal is mined at one operation, each bench or vein being worked a short distance in advance of the upper ones, and no pillars to speak of are required to be left. Communications between the various veins are made by cutting away the dividing slates, etc., at the foot of the slope, as well as at other suitable points inside on either hand (east or west). Through these short tunnels, or "flats," as they are termed in England, the coal from the back or higher veins is brought out and hoisted along with that cut in the front or lower vein, or veins, if several are worked in advance of the "flat."

Plate I. will, I think, clearly explain the main features of the system. It will thus be observed that by this method, when once the slopes, etc., are made, every ton of coal is hoisted from the same horizon or level at which it is cut. There is no sliding or wagoning of the coal down to gangways, and there are no roadways to keep open excepting for hoisting coal, ventilation, pumping, etc. The lengths of the hoisting or other slopes, as well as of the airways, decrease each time the "flat" is raised to suit the position of the faces, and this is done by taking down the top and raising and moving forward the tracks, switches and crossings. The rate at which the working-faces move forward depends upon the output required, length of faces, thickness and character of veins, facilities for hoisting, and other things.

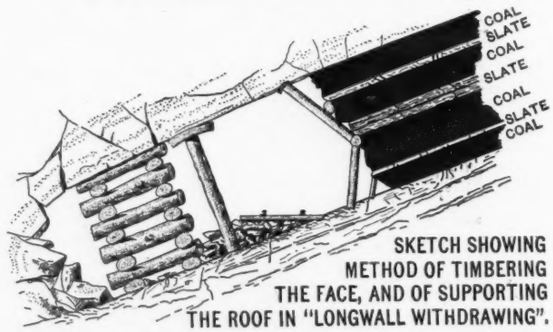
It will readily be understood that the relative horizontal distance between the veins worked to the same slope, *i. e.*, the length of the "flat," depends upon three things, namely, (*a*) thickness of veins; (*b*) thickness of intervening slates, or what not; (*c*) how much the roof or the upper benches of coal bend down or compress the "gob," owing to the lower benches being taken out in advance; and this is largely governed by the number, size and character of the packs, cribbings, etc., put up to carry the roof and properly maintain the faces. One of the chief benefits to be derived from this method of mining coal lies in keeping the front faces just so far in advance of the next one behind it that the gradual subsidence of the strata upon the goaf induces the upper veins to crack or break off with very little labor on the part of the miner, and with but little powder.

The best results in respect to cheap mining and the production of the most suitable coal are obtained when the upper benches can be "caught alive," as we say in England, a phrase which admirably expresses the full meaning of the last sentence. The packs, cogs, cribbings or shanties, or whatever else they may be called, are regularly built up at proper intervals all along the faces or where found to be necessary, just behind the men as indicated upon the plan and section. See Plates I. and II. Upon the way in which this department of the work is done much of the success of the system naturally depends. The materials used in these packs are obtained from the flats, the veins themselves and the top slates, and from other places if more be wanted. Timber cribbings are excellent aids in keeping the workings in order where the mine refuse is not present in sufficient quantity. The coal itself has, of course, to be systema ically secured by

Pl. II.



VERTICAL SECTION, OR PROFILE, SHOWING "LONGWALL WITHDRAWING" APPLIED TO FOUR SPLITS OR SEPARATE VEINS, ON A PITCH OF ABOUT 30°.



SKETCH SHOWING METHOD OF TIMBERING THE FACE, AND OF SUPPORTING THE ROOF IN "LONGWALL WITHDRAWING".

timbering, which is usually done in the manner shown in the lower sketch on Plate II. It will therefore be seen that we mine the coal out, clear up and abandon as fast as it is possible to advance the faces; whereas, by the gangway and pillar method delay brings on crush, destroying strength of pillars, and spoils and loses coal. Vigilance and rapidity of mining are the secrets of the management.

Now, if the above-described method would not be applicable to some of the split or twin veins of anthracite—veins much inter-stratified with benches of slate, dirt, bony coal, etc., and where two or more separate veins lie at no great distance apart vertically, and particularly I imagine where the pitch is not heavy (and I have seen at several collieries conditions that appeared very favorable to the plan)—I am inclined to think that it would be difficult to find a better one that would answer the purpose it is to proposed to serve. Could any mining method be better suited for obtaining large quantities of coal in close proximity to the foot of the slope?

In England we are mining coal on this particular system on a variety of pitches varying between 7 degrees and 25 degrees. In some collieries as many as six separate veins or benches are worked simultaneously through one main hoisting-slope, the coal from all the different faces being brought out through the level cross-cuts to the flats.

This method of mining is not confined to deep workings only. Provided roadways such as gravity-planes and air-ways can be maintained, the system can be almost equally well operated *above* the shaft bottom, drift, gangway, tunnel or level, as *below*; but then the system becomes Longwall *advancing* instead of Longwall *withdrawing*. The principle, as well as the actual plan of getting the coal are, however, identical. When coal is worked to the rise of the shafts, drifts or tunnels, the gravity-planes are made on the top of the goaf next to the top rock, the flats being raised periodically, and so lengthening the planes as the faces advance upward on the pitch. The question as to how many, or what veins or splits could be worked together from one slope or plane with advantage, of course depends upon circumstances, chiefly upon what thickness of slates or other strata it would pay to take down between the veins in the "cross-cuts" and "flats." In England, a vein 7 feet in thickness was worked from rock tunnels or flats as much as 70 feet in length, the pitch being 15 degrees

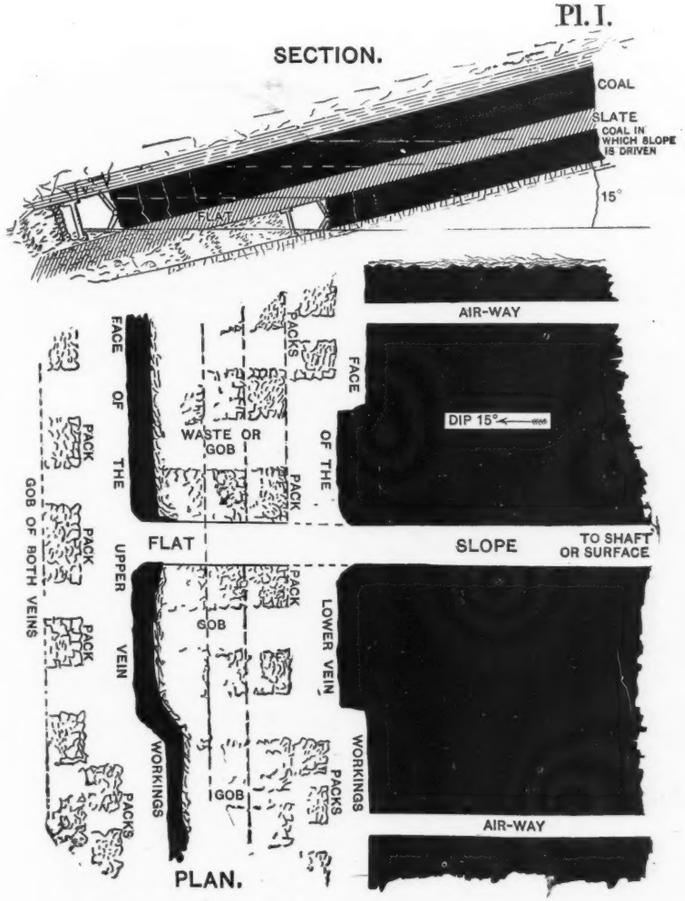
more or less. The same colliery worked four other veins of an average thickness of 26 feet, including slate parting 5 feet. The length of each separate face, on each side of the main hoisting slope, was about 450 feet. The output was about 500 tons a day, but at an adjoining mine, as well as at others further away, new openings are being made for hoisting as much as 900 to 1,000 tons a day. It is, of course, quite impracticable to hole or undercut, break down and load up the entire length of each face every day. From 40 to 50 yards is about the usual length "turned over" each working day or shift, but all depends upon the thicknesses of the veins and their character, number of men at work, hoisting arrangements, and so on. The upper benches of veins require much less labor to mine than the under one, becanse, as already stated, the squeezing action of the roof materially lessens the miner's labor. The position of the packs, cogs, etc., usually built up in the goaf is shown in the plan on Plate I. The width, height, and distance apart vary to suit the conditions, and no rule can, of course, be laid down respecting them. The quantity of powder, timber, etc., consumed varies according to circumstances, such as the number and position of partings, smooths, and the "cleat" of the coal, thickness and nature of the dividing slates, character of top, speed of working, pack-building materials available, timbers stood, and other matters. In some mines worked on this method there are no horses or other live stock at all underground, but it must be remembered that the mine-wagons in England are small and manageable—more the size of breast buggies used here, and are pushed by men or boys along the faces to and from the foot of the slope.

Such, then, are the leading features of the method suggested, and as practiced "across the water." Circumstances being different here, modifications in detail would doubtless be necessary; for example, anthracite veins can seldom be holed either above, below, or in the middle, and holing is perhaps unnecessary, as there is no particular inducement to mine the coal in as large lumps as possible.

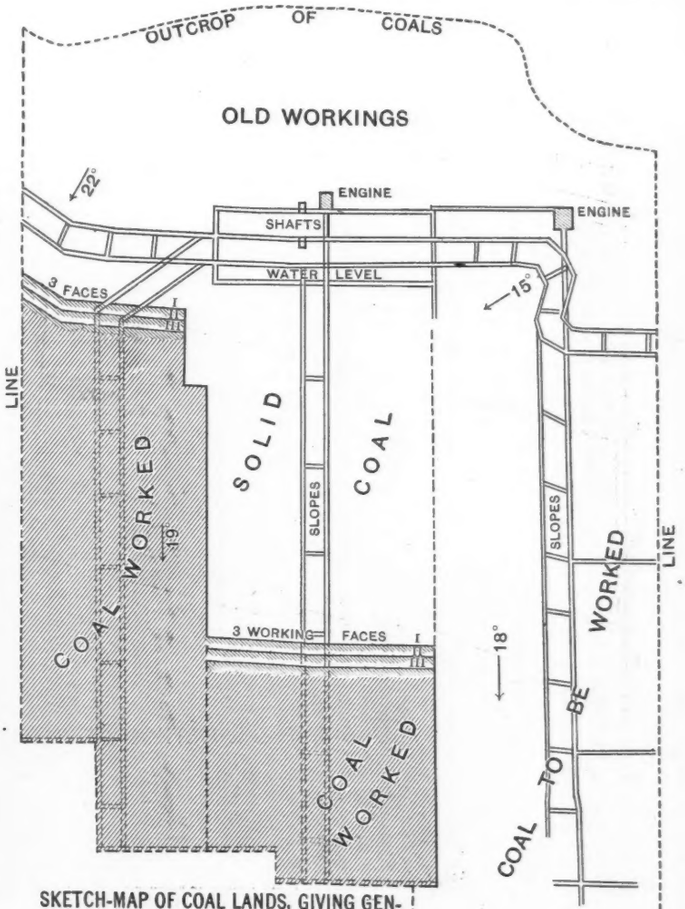
In regard to the *economic results* obtained by working the mines in England upon the above-described method in preference to former and less satisfactory systems, the following may be cited: That all attempts to mine out more than one or two benches or seams (often one only), where the series, as shown upon Section Plate VI., came close together, or even if only two benches where they were not divided by any great thickness of measures, invariably proved very troublesome, exceedingly wasteful, and generally very unsatisfactory. The old modes of working were either driving narrow places about 24 feet wide parallel with one another, and cross-cutting every here and there for ventilation, then side-cutting the top coal and dropping it, and finally (if the pillars or ribs had resisted the squeeze and the place was not on fire due to spontaneous combustion), reducing the size of the pillars or removing some of them altogether; or a long wall system, with packed "gate roads," the coal being let down to the haulage roads by gravity-planes, increasing in length as the working proceeded toward the rise.

The drawbacks to this method were loss of coal in main road and other pillars, gob-fires, small outputs and delays, making and keeping in repair of stall or gate-roads, inclines, levels, water-courses, etc. The coal was all let down hill to be hoisted up again, and therefore it had to travel long distances underground. Then the new method was introduced (about fifty years ago, I believe) and soon found favor, and has ever since been more widely adopted, until now it is acknowledged on all sides, where practiced, to be the proper and only system whereby the full thickness of the "ten-yard" seam, or such benches of it as run near to one another, can be mined out without great waste of coal, heavy losses due to mine fires, and other heavy dead expenses incidental to former inferior methods. It was not, however, until about twenty years ago that the idea of doing away with *separate slopes* for the coal and the underlying ironstone beds, and substituting *one hoisting slope only* for the two series, was successfully carried out (see Plates V. and VI.). Another and all-important gain due to change of system was the higher average price realized on shipments, due to the greatly increased proportion of large or lump coal produced in consequence of less powder (blasting) required to bring down the face in the manner recorded. Then, again, as to the working cost. Since from each separate block or tract worked upon the withdrawing system, other things being the same, the cost of haulage or hoisting up the slope decreases every day, because the distance to hoist, weight and height to lift at and from get less and less as the faces advance up hill. Each new rope costs less, because it is shorter and lighter than the one it replaces; less steam is required; less wear and tear; less repair and renewals; fewer rails and timbers: fewer mine wagons; less supplies; shorter time occupied by trip, therefore increased hoistings if constantly running; less ventilating power, etc.; less slope timbers. In Warwickshire and Staffordshire a further reduction in the cost of mining by this system has within the past three years been introduced, with a view of saving time and expense in opening out the mine, namely, the driving of slopes and airways to the land lines by heading machines (Stanley's patent), driven by compressed air, which enables the work to be pushed forward at the rate of 18 or 20 yards a day, as compared with about 3½ by manual labor. Not an ounce of power is used. Two men work the machine; the exhaust produces an excellent ventilation; nearly all the coal cut is lump, and the process is a great success, and has reduced the cost and time of opening a mine very materially indeed. This machine is illustrated in the advertising pages of the JOURNAL.

Pl. I.



Pl. III.



SKETCH-MAP OF COAL LANDS, GIVING GENERAL IDEA OF MINING OPERATIONS WHEN CARRIED ON BY LONGWALL WITHDRAWING. (Three Veins are Being Worked.)

At several collieries with which I am more or less acquainted this longwall withdrawing system is at the present time being extended to tracts of coal (the "Thick" coal of South Staffordshire and Warwickshire and to the "Main" seam of the adjoining counties of Derby and Leicester) lying deeper in the basins (1,200 feet beneath the surface), below old workings near the outcrops, as well as to the dip of more recent operations.

In addition to the above mentioned advantages obtained by this mode of working, the following may also be enumerated:

a. In England, in certain collieries in Warwickshire, the coal lost in waste in mining was 12·5 per cent of the entire section—Plate VI. In other words, the yield amounted to no less than 87·5 per cent. But the average percentage of coal mined in that district is somewhat less than this. The system, if applied to some of the anthracite veins, ought certainly to admit of at least 80 per cent of the coal being mined. In order to prevent mine fires in England a great deal of coal (fuel) is left in the workings to gob up with; but as *close* gobbing or packing is unnecessary in anthracite, coal for this purpose would not be wanted; it would be hoisted and treated for sale. With these remarks, and after due considerations of the illustrations accompanying this paper, it will appear clear that, with proper care, the loss of coal should be very small.

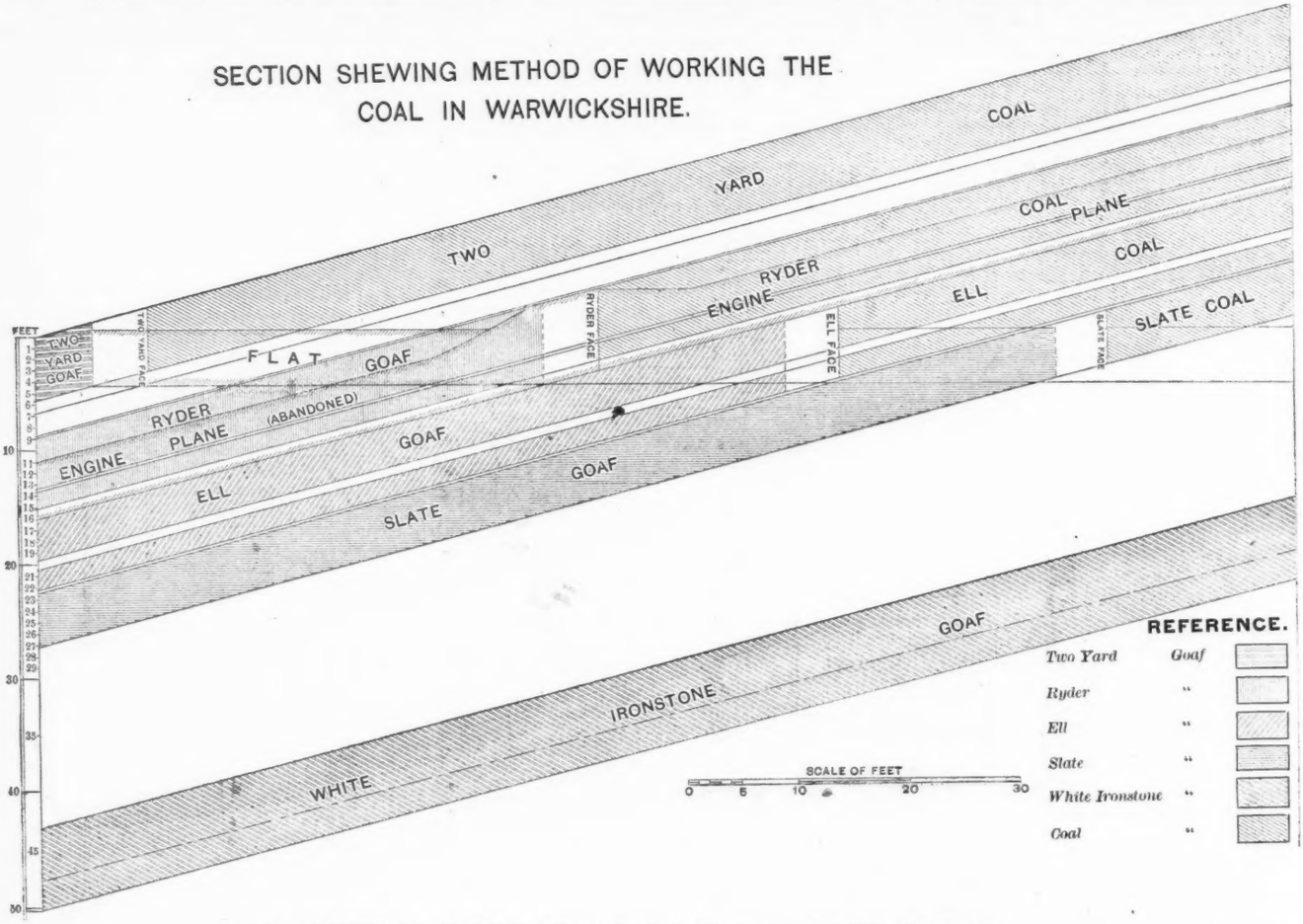
b. Few, if any, methods of mining coal are more simple to manage, and once the working faces have got well opened out, and a fair start made, the coal is cheaply worked, and delays and losses, both to operators and employés, in consequence of serious accident or disasters happily seldom occur. The question of the probable cost of the method will be dealt with further on.

c. It will also be seen that a larger quantity of coal could be mined from within a given area by the proposed system than probably by any other: in other words, the system possesses better facilities for obtaining large quantities from comparatively small areas than any other the writer knows of. Everybody knows how "inside" expenses of one sort or another increase the further the coal has to be conveyed to the slope, and in what manner extensive workings standing open for future use affect the cost of mining. One point of special importance in the method is not to have more working faces in operation than the hoisting arrangements can deal with; the "pit room" should, as far as is possible, be of such extent as will permit carrying on coal-getting operations at the proper speed, which is regulated by the output required or provided for in the shape of hoisting and hauling power.

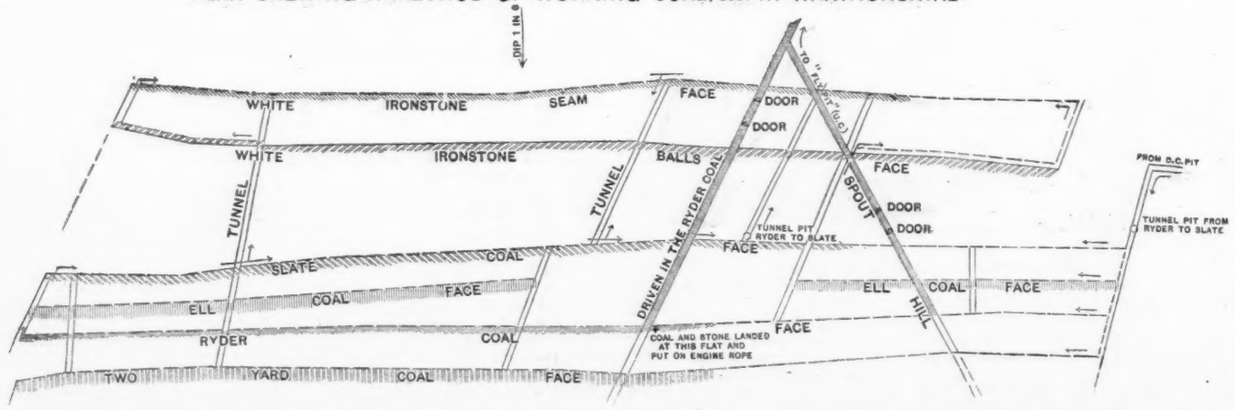
d. That all squeeze, weighting, creep, or crush is taken up by the exhausted portion of the mine. Instead of doing all possible to prevent squeeze and caving-in of roof, the proposed method of mining facilitates as much as possible the closing up of the gob behind the miners as soon as the coal is removed. The men are never for long (more than a few days) passing or working under the same top in the faces, because everything is continually moving forward. and a fresh roof got beneath.

e. Very full opportunity is offered for miners to take every advantage in the actual getting of the coal, of the natural "partings" or "smooths," as well as of the "cleat" (slips and joints). It is only to a very limited

SECTION SHEWING METHOD OF WORKING THE COAL IN WARWICKSHIRE.



PLAN SHEWING A METHOD OF WORKING COAL, &c. IN WARWICKSHIRE



extent that this can be done under the present method. And, seeing that there are practically no fast ends to mine from, a great reduction in quantity of powder used may reasonably be looked for.

f. Of not having the men engaged in coal-getting, etc., scattered far and wide over a large extent of workings, as under the present regime; for it is obvious that the more the work can be concentrated the easier of management it becomes.

g. No old workings, such as finished chambers, breasts, etc., to keep open, no pillars to protect, and few gangways to maintain.

h. Probably no other system can afford equal facilities for efficient ventilation: distances for the air to travel are as short as possible; it has not to be taken up hill to be brought back again as in breasts; with proper care it cannot help being kept circulating close along the faces where gas is given off, and smoke from blasting and lights is being produced. Collieries worked on this plan require but little artificial or mechanical ventilation. The writer knows of a large longwall colliery worked from the dip towards the rise, the workings being 8,000 feet from shafts which were 820 feet deep, where neither furnace nor fan was used, but only the exhaust steam from a 20-inch hauling engine.

i. When the surface can be let down without risk or without incurring great cost, the longwall method permits of this being done with minimum damage to property, because the subsidence goes on very evenly, and the surface is seldom broken.

j. The gob or space from which the coal has been extracted, affords the best possible receptacle for the mine water. Less pumping is, therefore, required, in some cases none at all.

k. Fewer mine cars and fewer mules and drivers.

It need scarcely be said the above list is not an exhaustive one, for I have no doubt that mine officials will on reflection see that under the present

Pl. IV.

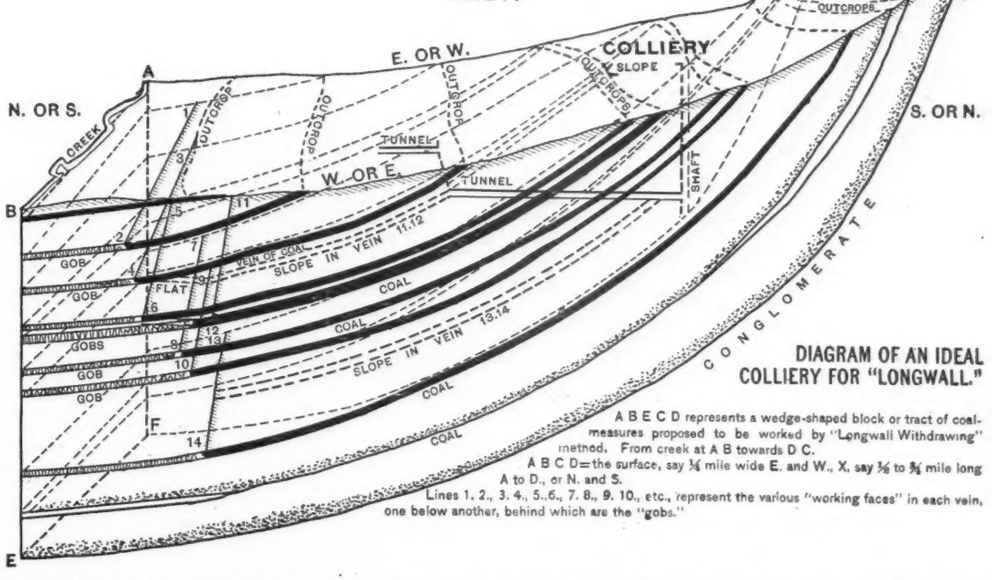


DIAGRAM OF AN IDEAL COLLIERY FOR "LONGWALL."

A B E C D represents a wedge-shaped block or tract of coal-measures proposed to be worked by "Longwall Withdrawing" method. From creek at A B towards D C.

A B C D = the surface, say ¼ mile wide E. and W., X, say ⅛ to ⅜ mile long A to D., or N. and S.

Lines 1. 2., 3. 4., 5..6., 7. 8., 9. 10., etc., represent the various "working faces" in each vein, one below another, behind which are the "gobs."

coal or bottom of basin—if there is capital to go as far at the outset—and out of them are driven, at distances varying from 500 feet to 600 feet apart (depending upon the thickness of the veins and output required), inside slopes to the limit or line from which the coal is to be worked back. The bottoms of these slopes are then connected by cross-headings and the coal is mined clean out uphill to the level. Whilst this first or deepest block is being exhausted another one so much further (say 1,000 feet) to the rise is being prepared for work, and so on upwards until the colliery is exhausted. This is the plan now being worked upon at the Bedworth Colliery, near Coventry, where the vein is 22 feet thick, workable coal, dipping 1 in 4. For hoisting up the inside slopes, compressed air engines are employed, one for each slope, and endless rope haulage is applied to the levels (gang-ways), as well as to main hoisting slope to shaft. Of course where the capital is small and the property extensive we only drive a certain distance down hill with the main slope and branch out right and left with the levels or haulage-ways, leaving ample width of solid coal between the areas or blocks worked from such levels, so that future deep workings may be developed further on. But when possible it always pays best in the end to go right to the far end or deep of your lease first; less coal is thereby spoilt by squeeze, for if any pillars have to be left, no risk from gob-fires, and if there be water it is left behind in the waste.

As to the getting or actual mining of the coal, the working, or longwall, faces being intersected by a hoisting slope at about every 600 feet along them on the strike, the bottom bench of coal is first holed or undercut and systematically spragged and the face secured by timbers, as shown on plate II., lower figure, the dirt or refuse being thrown behind and the blocks built up into packs. This holing of the coal is, of course, done by a special set of men, and usually at night; the depth holed varies

systems there are other things which might be set down in favor of the one proposed: for instance, does not the mention of "no old workings," "few gangways," etc., imply the removal of many sources of accident, as well as of expense in one way or another?

I may perhaps be permitted to make the following suggestion, which has reference to packing or the stowing with refuse the mined-out spaces, though I lay no claim to originality in this connection. In places where the workings themselves do not furnish sufficient material for pack-building, additional débris in one form or another (rock, quarried at surface, blast furnace slag, mine dirt, sent out with coal, etc.) is lowered into the workings and systematically deposited where and as required. This process is usually resorted to in cases where it would be impossible to get out all the coal or other minerals from beneath important buildings, etc., which have to be protected, unless at very great cost. There are collieries in France, China, Silesia and Wales, and we know of one in this anthracite region, where this is done. Schemes for filling up worked-out lifts are also being considered at other collieries in the region. I am probably not the first to whom the idea has occurred of utilizing the loose stones and other surface débris lying in greater or less profusion upon the mountain slopes around or above the mine entrances. Large quantities of such material could, I imagine, be easily and cheaply removed, slid down the hill-sides in chutes and conveyed into the mine to gob with just as fast as the coal is extracted. And why might not the *weight* of the descending rubbish be utilized in assisting to hoist coal or to raise water?

The diagram marked Plate IV. is given with the intention of showing how an imaginary tract of coal land, at present untouched by mining, could, in the writer's opinion, be best worked with the express object of losing as little of the coal as possible. Mining, *i. e.* a series of longwall faces, is commenced at the deepest point of the area to be worked, and in as many veins as possible, and these faces are kept nearly one overanother, and advanced in as regular order as circumstances will admit, the gobs being left behind and the surface allowed to settle down upon them without let or hindrance.

HOW THE WORK IS CARRIED ON AND PROBABLE COST OF THE METHOD.

A slope having been put down or a shaft sunk, levels are driven at suitable distances to the dip—say 1,000 feet or so from the deepest point in the

as much as 6 or 7 feet sometimes. The next operation is knocking out the sprags and letting the coal fall (if it will), or blasting, barring, or wedging it down, breaking it up, filling it into mine cars, and tramming to foot of slope. The place is then cleared up, timbered, and otherwise made secure; the flats are raised, tops taken down, tracks brought forward, etc., ready for the recurring operations. In place of the heavy and expensive timber bars or collars formerly used, steel I-shaped ones are being largely introduced. They are not only cheaper in first cost, but are far more durable, easily handled, bend instead of break, and can be used over again by simply turning them upside down.

THE COST OF COAL GETTING.

In regard to the cost of the plan. This, of course, varies at every colliery, but the custom of the district is to have the work done by contract. The mine is divided up into "stalls," each stall being let to a number of "butties" or contractors at an agreed price per ton. Such contract usually provides that the holing, getting, filling, tramming, timbering ripping, pack-building, gobbing, keeping in proper repair, maintaining and carrying on a certain length of face shall be done to the satisfaction of the manager at so much a ton (stall ton), contractors paying for tools, lights, explosives, oil and such like. Each "company" (set of butties) employs a certain number of "holers" and pays them at per "stint," which is equivalent to so much per square foot; another set of men do the breaking down and preparing for the fillers, and sometimes they too are paid by the stint or length taken down. Filling cars is done by the ton. Such labor as flat-raising, general repairing, timbering, etc., is done at so much per day. But it must be clearly understood that the butties themselves are engaged in all these departments, and whenever any work is going on in the stall, it is always in charge of one or more of them.

The butties, therefore, receive a more or less regular wage and also share in any money there may be over when all the wages are paid.

I have recorded these details of the work and customs of payment as practiced in England, in order to show how very difficult it is to make comparisons of costs of mining where the systems or methods of working differ so widely from one another, not only in actual manner of cutting coal and of carrying on the working places, but in the way in which the miner's labor is applied and how he is paid for it. The difficulty, too, of

making a really reliable, satisfactory and fair estimate of what the Warwickshire method would be likely to cost if applied to anthracite here is greatly increased in consequence of the writer's inability, so far, to obtain from any mine-operator or corporation a statement of inside expenses at the present time, either in total or in detail, notwithstanding he explained for what special purpose such figures were requested. Thus, the only data available relating to cost of mining anthracite within recent years have been taken out of Dr. Chance's "Coal Mining," Penna. Second Geol. Survey, A. C., 1883, pp. 359, etc., and are quoted in this paper for what they may be worth at this date.

COST PER TON IN CENTS.

	Susquehanna Coal Co.	Mineral R. and M. Co.	Summit Branch R.R.	Lykens Valley Coal Co.
Inside.				
Air and gangways	4·81	14·50	14·76	13·72
Cars, slope and drift	2·62	1·86	1·10	4·08
Cross headings and chutes	2·91	7·63	7·31	9·58
Exhaustions of lands	8·08	....	4·11	....
Hoisting and pumping	....	4·82	11·38	25·08
Mining coal	48·20	48·71	44·55	56·24
Repairs and general expenses	41·57	22·12	44·12	76·94
Timber and props	5·18	9·27	7·47	29·29
	113·37	108·91	134·80	214·93

I also give the following, which was published in *Coal* for 14th March, 1883. It gives the inside expenses on cost of mining by the Wilkesbarre Coal and Iron Company:

COST PER TON IN CENTS.

Mining, tons	960,334 = 72·491	Mine cars	5·873
Driving gangways and airways	9·889	Construction of machinery	·252
Cross-headings	3·926	Repairs to machinery	1·475
Chutes and props	5·869	Ventilation	3·061
Haulage	14·122		
Construction of railroads	4·378		127·642
Repairs to railroads	6·106		

These statements serve to show how widely the items vary in different localities, and also that pay-sheets and books are not all made out on similar lines even in the same coal-fields. It seems questionable, therefore, whether any good purpose could be served by endeavoring to go very fully into detail in this particular, even if minute classifications of work performed and expenses incurred were available on both sides. It does not by any means follow that if a miner in a moderately hard, long-grained, bituminous, long-wall face, say seven feet thick, can get on an average three tons a day, that an equally expert man in anthracite coal-getting could produce the same amount in the same number of hours in a stall in such coal working on the English method? He might get more. Neither does it appear impossible with the cheap labor, now so largely employed in the anthracite mines, that the actual mining could be done as cheaply per ton as in Warwickshire. Having given the matter a great deal of thought, the writer has drawn up the following as an estimate of the probable cost per ton in cents of the cost of mining anthracite by the longwall-withdrawing method, as practiced in the Midland District in England:

	Cents per ton, 2,240 lbs.
(i) Mining, filling cars, tramming to foot of slope, inclusive of timbering the face top, etc., pack or crib building, laying temporary tracks,* etc., say	35·00
(ii) Taking top down in flats and crosscuts, taking mine refuse into workings and gobbing it; building chocks and packs, lifting rails and clearing up, say	15·00
(iii) Repairs in air-ways, slopes, etc., say	3·00
(iv) Mine cars, haulage and mine timber, say	13·50
(v) Other items, say	8·50
Total wages and materials, say	75·00

* This 35 cents has been arrived at by excluding the cost of "holing" (because it is not practicable to hole anthracite in this country), and adding something in respect of cost of breaking down or blasting; though I question very much if the system would take more powder to mine the coal. In England holing costs about 24 cents per square yard, or about 16 cents per ton of coal gotten, varying according to thickness. It costs 31 cents to mine and put upon the slope, and as holing alone costs 12 cents a ton, we may fairly deduct it, leaving cost of getting, loading and tramming to rope about 19 cents. If miners' and their laborers' wages are here nearly double what we pay in England, then this 19 cents will become, say, 35 cents here in Pennsylvania

The second item, namely, 15 cents, is intended to cover cost of a class of work exceedingly difficult to make an average calculation upon, so very much depending upon the lengths of the flats, rock tunnels connecting the various veins being worked, the hardness of the measures, timber, etc., required; but I consider 12 or 15 cents should cover these things.

Hoisting, being common to both methods, has not been considered, nor have I put down anything for ventilation pumping and exhaustion of lands.

As to cost of opening a mine on the method suggested, it would certainly be more than on the present system, because more capital must be spent before coal can be raised in any quantity in slope and level-driving. I am speaking now of a mine intended to be worked entirely on the long wall-withdrawing plan; the system, however, when once fairly started and got into "full swing," gives quick returns, and objections to it (if there are any) bear no comparison to its advantages.

The writer trusts this paper, however incomplete it may be in many respects, will be widely read and freely criticised by interested parties throughout the anthracite region as well as elsewhere, for it is evident that the method is admirably adapted to the working of thick and inclined stratified deposits of bituminous and cannel coal, or combinations of coals and ironstones, fire-clays, limestone, oil-shales or what not, its special advantages being *clean working* at a *low cost*. He may, perhaps, be allowed to say this: that this paper has been perused by some of the most eminent mining engineers in the anthracite region who have pronounced it one of very considerable interest, and who very much wish to see the system tried. Already quite a number of copies of the paper have been ordered for distribution among mine foremen. The writer also desires to say that he will be glad to discuss the question further, and to advise those who contemplate giving the method a trial.

SINCLAIR HOUSE, Pittston, Pa.

NOTES ON GOLD MILLING.

Written for the Engineering and Mining Journal by C. H. Aaron.

(*Concluded from page* 120.)

In batteries the tendency is toward heavy stamps, some of the new mills having them of 1,100 pounds weight, while 1,000-pound stamps in some sections are becoming quite common. Another change is the increasing substitution of riffles for inside plates. The riffles are cast on an iron back plate, which is fixed in the mortars, and are said to catch a great portion of the amalgam. Steel shoes and dies are usually considered more economical than iron, and are being more generally used than formerly. In some California mills, as well as in the Silver King Mill, in Arizona, it has been found that the steel dies become worn in holes, and so irregularly as to be rendered useless long before they are worn down to the requisite size for abandonment, while the shoes remained in excellent form; in these cases cast-iron dies were used with steel shoes very advantageously. The inference to be drawn from this irregularity of the wearing of the dies is that the material of which they were made was of a bad quality. It is commonly stated at the mills where steel is used, that the shoes and dies of eastern make are much superior to those made in California, and at the Plumas Eureka Mill the English article is declared to be better than either of the others.

Tappets and cams of steel are now becoming common, and give great satisfaction. The tappets are generally counter-bored, and this practice is also being applied, though less generally as yet, to cams. The effect of the counter-bore is to give the cam or tappet three points of contact with the shaft instead of only two, as when the core is circular, the counter-bore being slightly oval, with the longer axis passing through the key-seat in the cam, or the gib in the tappet. This gives greater stability by preventing oscillation or wobbling.

In regard to the weight of the stamp, it must be remarked that the nominal weight, as given at the foundries, is greater than the actual weight. The former is the gross weight, the latter the net weight of the finished stamp, including stem, boss and shoe. The difference may be 50 pounds, by which amount the reported weight must be reduced in general. Unfortunately the most advantageous weight of stamps for crushing gold quartz cannot be deduced from a comparison of the stamp duties in the different mills, because the stamp duty is a function of many different quantities. The hardness of quartz, as tested by scratching, is nearly uniform; but the facility with which it may be crushed depends greatly on its texture, as whether it is friable, like that of the Yuba Mine, or compact. The size of the lumps of ore falling under the stamps exercises an important influence on the stamp duty, for, while a large piece manifestly requires more force to crush it than a small piece, it unfortunately happens in a battery that the larger the piece the less force is applied, because the drop of the stamp is proportionately reduced at the time when it should be increased. For the same reason the manner of feeding makes a great difference, high feed taking more from the fall of the stamps than low feed.

Naturally, the more the rock is broken into small pieces before it goes to the battery, the lower and more uniform can the feed be made, and the less drop will the stamps require; hence the frequency of the drops can be increased, and more ore can be crushed with the expenditure of a given amount of power in lifting the stamps.

At the Silver King Mill, in Arizona, the stamp duty with a given drop was increased fully 20 per cent by the use of a good rock breaker, as compared with the results of breaking by means of hand hammers. Then not only the grade of screen used, but the height of the discharge above the dies, the width of the mortar, the extent and rate of stamp drop, the quantity of water used in the battery, the proportion of the sulphurets, all influence the rate of crushing, even though the ore may be essentially quartz; and when different kinds of rock also enter into the question, it becomes so much the more involved.

In the Delhi Mill, stamps of different weight are used, namely, 1,000 pounds and 1,100 pounds, the screens and drops being equal. This would afford a good basis for comparison but for certain circumstances. In the first place, the diameters of the shoes are not proportioned in the ratio of the weights, being respectively 9 and 10 inches, giving the crushing surface ratios as 81 to 100, while the weight ratios are as 90 to 100. In the second place, the heavier stamps are five in battery while the lighter are but four, which places the latter at a disadvantage in two ways: first, because the order of the drops cannot be so well arranged, in consequence of which two adjacent stamps follow each other, which is a disadvantage; second, because one-half of the four stamps are necessarily end stamps, while in the other case only two-fifths are end stamps, and it is conceded that the end stamps do less crushing than the others in a mortar. Thus the statement of the mill foreman that the five-stamp batteries crush one half ton per stamp a day more than the four-stamp batteries, while doubtless true, cannot be accepted as proof of the superiority of the heavier stamps, which consume less power in proportion to the work done; that is, they require one-tenth more power and do one-fifth more work, nearly.

The Blue Bell and Washington mills, in Nevada County, are alike in weight of stamps, drop, number of drops, and grade of screens, yet the respective stamp duties are $1\frac{7}{10}$ and $2\frac{4}{10}$ tons, while the Yuba, with fifty pounds more weight of stamp, $1\frac{1}{2}$-inch more drop, and four less to the minute, has a duty of 2 tons. The power required for the Blue Bell and Washington is to that required by the Yuba, as 4,399 to 5,418, while the mean duty of the first two is to the mean duty of the last, as 195 through 30 meshes to the inch to 200 through 40 meshes. The additional power consumed in the Yuba, equal to nearly 23 per cent, gives nearly 2.7 per cent more ore crushed through a sieve which has nearly 78 per cent more meshes to the square inch. The value of the difference it is impossible to compute in terms of power required, hence this comparison is of little utility.

The Gaston Ridge mill, with 750-pound stamps, consuming a power represented by 58, has a duty of $2\frac{7}{10}\frac{5}{0}$ tons daily, while the Omaha, with 900-pound stamps and a power consumption represented by 50, gives a duty of $1\frac{8}{10}$ tons daily, the screens being of the same grade in both. In this case the lighter stamp consumes the greater amount of power, owing to the higher and more frequent drop, and it crushes nearly 72 per cent more ore with 16 per cent more power, which is largely in favor of the lighter stamps. Again, the Mayflower, with 950-pound stamps and a power in the

proportion of 59, crushes $2\frac{6}{10}$ tons through the same screen; hence, with slightly less power, the lighter stamp again crushes more than the heavier by 10 per cent.

Comparing the mean results of the Blue Bell and Washington with the results of the Crown Point, we have:

Weight of stamps.....850 pounds; power, 44; duty ,1.95
Weight of stamps.....750 pounds; power, 45; duty, 1.50

As the screen is the same, the result is in favor of the heavier stamp.

Following are the results of some calculations of the proportionate power required to crush one ton of ore in different mills. The proportional power is found in this way: The nominal weight of the stamps is corrected by the subtraction of 50 pounds for trimming and mean wear; the stated drop is reduced by one inch to allow for the loss of drop by the ore under it. The corrected quantities are then multiplied together, and the product is multiplied by the number of drops per minute; this product divided by the stated stamp duty gives a relative figure representing the power used in lifting the stamps.

Screen, No. 9 Slot.		Screen, No. 7 Slot.		Screen, No. 6 Slot.		Screen, No. 5 Slot.	
Nominal weight of stamp.	Proportional power to 1 ton.	Nominal weight of stamp.	Proportional power to 1 ton.	Nominal weight of stamp.	Proportional power to 1 ton.	Nominal weight of stamp.	Proportional power to 1 ton.
950 lbs.	144	850 lbs.	207	850 lbs.	144	850 lbs.	168
900 "	109	750 "	168	850 "	174	750 "	151
800 "	198	750 "	151	750 "	166	.....	.....
800 "	144	.....	.....	.....	.....	.....	.....
650 "	255	.....	.....	.....	.....	.....	.....

These results show the impossibility of deducing anything useful in this respect from the records of different mills working on different ores, as given in the report of the State Mineralogist.

Of machines other than stamp batteries for the reduction of auriferous rocks, I can say but little, unless as to the work at the Spanish mine in Nevada County, where is successfully worked in Huntington centrifugal rolling mills perhaps the lowest grade of milling rock that has ever been made profitable in this country.

By reference to the notes on the mine in question in the report of the State Mineralogist, 1888, it will be seen that the ore yields an average of 70 cents per ton, on which a profit of 20 cents per ton is realized. It goes without saying that the conditions are exceptionally favorable for extracting and milling the ore at little cost, and that a cheap class of labor is mainly employed, yet we cannot but admire the courage of the man who not only undertakes to handle seventy-cent ore without loss, but has actually paid off some $8,000 of debts from the proceeds. In this plant the five-foot Huntington mills work daily some 35 tons each of soft slate mixed with a little ferruginous quartz. It must not be hastily inferred that this mill is suitable in all cases.

The Tustin mills have worked satisfactorily in Calaveras County, at the Willard mine, where they have been used for crushing ore for amalgamation on plates and concentration of the sulphurets. T. B. Morse, E. M., in his report on this mine, published in the report of the State Mineralogist for 1886, speaks of the work of this machine in comparison with stamps as follows:

"A comparison of the two methods of crushing shows a marked difference in the results. In crushing through the battery a large amount of slimes are produced; with the pulverizer a very small quantity of slimes is made. As a consequence, with our ore where the rock is very hard, the gold exceedingly fine, and the sulphurets soft and brittle, we find that on the same ore we amalgamate a much greater percentage of the fine gold after the pulverizers than after the stamps; and when we come to concentrate, we can save only 18 to 20 per cent of the assay value of the ore after stamps, and 85 per cent after the pulverizers. On the same ore and with the same screen one pulverizer is about the equivalent of six to eight stamps, according to the character of the ore."

This verifies what has been said as to some of the causes of loss of gold and of sulphurets.

Another machine, which is the acme of simplicity and cheapness, is Kendall's National Rocker. A mill of this kind is worked at Bald Hill in Placer County, and Mr. Bell, the owner, states it is giving excellent results from hard quartz containing free gold and pyrites; it was also tried at the Spanish Mine, and, although not so satisfactory as the Huntington, it did as well as a stamp battery. The Wiswell and Bryant mills, which are modifications of the well known Chili mill, or edge wheel, are well spoken of in some quarters. All these mills are essentially rolls, differing from the Cornish and Krom rolls chiefly in that they consist of a roller or rollers working against a plane, or a ring-formed base, instead of against another roller, with the advantage that the ore does not escape until it is fine enough, while, especially in the Tustin pulverizer, it is not subjected to much needless trituration. It is well known that they produce less slime than batteries do, and crush the ore with more evenness. While stamps may be best in many cases, it may well be that some of our millmen go too far in giving them the preference in all.

We have seen that one cause of a loss of gold may be excessive trituration in the battery. One of the radical defects of the battery is that the rock is not completely expelled from the mortar as it becomes fine enough to pass the screen; it would be easy to demonstrate that it cannot be, but that is unnecessary, as the point is universally conceded; on the other hand, a loss, more or less, is always sustained for the want of trituration of a portion of the ore, leaving many particles of gold still inclosed in the stone.

The notes in the report show a very general preference for the Frue concentrator; nevertheless, where the Frue and Triumph are used side by side in the same mill, there seems to be no difference in the results obtained, though preference is still given to the Frue, for the reason, as stated by the millmen, that it requires less care and attention than the other, which is to say, equally good results are obtained with less trouble.

How far the preference may be due to the fact that the Frue was first in the field, the future must determine.

As a motor, where water power under high fall is available, the practical verdict of the millmen is in favor of the Pelton wheel.

In Amador County more Knight wheels are used than Pelton, and as many Donnelly as Pelton. Knights are generally used in hoisting works, on account of the hydraulic nozzle. With two six-foot Knight wheels and power gates and nozzles the engineer can run the cable four hundred feet per minute, and stop the skip within a foot from the place it occupied when the gate was closed. These nozzles do not work in a bucket shaped like the Pelton.

The Pelton wheels under most heads work to a higher percentage.

The Donnelly wheel is used with any number of round nozzles. The buckets are fastened on the wheel as in the case of the Pelton.

Overshot wheels are rather frequently used with low falls, but are open to the objection of a great tendency to become loaded with ice in cold weather; moreover, a Pelton will work with a low fall, and is cheaper than an overshot of large diameter. The true turbine wheels are not much used in quartz mills, probably because a turbine for high fall is of very small diameter, and consequently must make so many revolutions per minute that excessive "gearing down" is necessary in order to obtain the very moderate rate of revolution required in most parts of a rock mill, which is not the case with a Pelton, a Knight or a Donnelly, as these can be made of much larger diameter for any given fall, and hence make fewer revolutions per minute. Another difficulty with at least one of the best turbines, is that, if not worked at full gate, any suspended matter in the water, even mica, lodges in the wheel case and obstructs the movement of the gates when that becomes necessary. Also, the efficiency of such wheels is much impaired by a small amount of wear.

The feeders in use, where not some simple, home-made contrivance, as the "box feeder," or the more ingenious "bucket-roller" feeder in the Ready Relief Mill, are almost universally the Hendy Challenge.

The Templeton, or roller feeder, is used exclusively in the Keystone Mill, and is giving entire satisfaction, and the same feeder in the Bunker Hill Mill works side by side with the Challenge, and though the latter is considered the better machine, it is much more costly.

I have examined a sample of concentrated sulphurets as to an alleged volatilization of gold in roasting them in the muffle without salt. The sender stated that he found a loss of $22 in gold and 2 ounces of silver to the ton.

Two assays were made on the raw material with very nearly concordant results, and two others were carefully roasted prior to the smelting, the results of these also nearly agreeing. The difference between the means of the raw and the roasted assays showed a loss of 0·3 ounces of silver per ton, or about 1½ per cent of the total silver. There was no loss of gold. The ore contains, besides iron pyrites, tellurium and antimony; not any copper.

In the experiment the ore was roasted with very low heat, and under a perforated cover to prevent loss by decrepitation, for about 45 minutes, being twice removed from the muffle, cooled, uncovered, and stirred. Afterward the covers were removed and the roasting was continued for half an hour longer under higher heat; the ore then smelled quite "sweet," and was assayed in the usual manner.

The roasting dishes were well coated on the inside with reddle, and after the roasting the bottoms were scoured with ground glass to remove any metal which might have passed into or adhered to the substance of the dishes, the resulting dust being added to the assays.

The losses noted by my correspondent must be ascribed to the decrepitation of the ore, too rapid roasting, or absorption into the dishes, or to all of these causes combined, neither of which, however, would have much effect in the roasting in a three-hearth reverberatory furnace.

THE TWO SIDES OF THE MEXICAN LEAD STORY.

In order to show the divergence in views of the western mining interests on the Mexican ore question, we quote the resolutions adopted at Denver and at El Paso. Undoubtedly the miners of dry ores, especially in New Mexico, Texas and Arizona, will be greatly injured by the shutting out of Mexican fluxing ores. Denver, Colo., resolutions adopted August 6th:

WHEREAS, The growth, development and prosperity of Colorado is now, has been in the past, and is likely to be in the future dependent on her mineral resources; and,

WHEREAS, The mineral product of the State has already amounted to over $283,000,000, with steady and rapid yearly increase—the product for 1888 exceeding $35,000,000; and

WHEREAS, A large proportion of this yearly product is represented by labor at the highest price prevailing in any State of the Union; and

WHEREAS, This great industry is threatened with destruction by competition with the cheap labor of Mexico; and,

WHEREAS, The beneficent laws of our country are intended to protect, and if rightly construed are ample for the purpose; now, therefore, be it

Resolved, First: That the citizens of this State should organize in every city, town and camp for mutual protection of our leading industry. Second: That it is due to us from the officers and representatives of our government that measures be immediately taken by them to insure such protection.

Resolved, That silver ore being admitted duty free and lead ore bearing a duty of 1½ cents per pound, that it is unfair and unwise to permit 1½ pounds of silver to bring in free of duty 1,000 pounds of lead, which should pay a duty of $30 per ton.

Resolved, That it is a plain, common sense that ore carrying 1½ pounds of silver per ton and 1,000 pounds of lead per ton is not a silver ore, but a lead ore, and should be so classified.

Resolved, That the commerce of the State, amounting to 200,000 carloads of mineral, merchandise and machinery, during 1888, is mainly due to the mining industry, and that other States, supplying their proportion of this immense business, should aid us in securing the protection needed to prevent the destruction or decay of this great source of the wealth of the nation.

Resolved, That we believe in the power and in the desire of the Hon. William Windom, Secretary of the United States Treasury, to remove the trouble indicated, and we confidently look to him for the desired relief and protection.

El Paso Resolutions adopted August 12th by the Southwestern Mining Association, representing the mining interests of Texas, Arizona, and southern New Mexico, besides American miners in Mexico:

WHEREAS, At the instance of the lead monopolists of Colorado, a meeting of citizens was recently held in Denver, the object of which was to protest against the free importation of lead ores from Mexico and other countries; and,

WHEREAS, It is the manifest aim of these monopolists to encourage public opinion demanding the repeal of the law now fixed on such importations, and reversing the resolutions heretofore made by different Secretaries of the Treasury, by which the introduction of such ores from Mexico has made the exchange of commodities with that country a source of profit and advantage; and

WHEREAS, Such resolution seeks to break down and destroy the smelting interests of the Southwest by denying the importation of fluxing ores essential to the smelt

ing of dry and refractory ores, which are the products of Texas, New Mexico and Arizona; and,

WHEREAS, The further growth and prosperity of the Southwest, already well advanced, will continue to remain independent on the commercial relations now subsisting between Mexico and the United States; and

WHEREAS, To insure a continuance of this prosperity, and encourage the growth of that section, every channel of trade for the importation of Mexican ores to be employed in payment for the exportation of American products and manufactures should be kept open and constantly widened by legislation; and,

WHEREAS, That section, with its many new and well-equipped smelting plants, and Mexican silver-lead ores introduced free of duty, possesses ample conditions and facilities for the profitable reduction of its own ores, thereby saving from waste a large per cent on account of the treatment of dry and refractory ores and the freight thereon to the smelters in Colorado; therefore

Resolved, That on behalf of the mining interests of Texas, New Mexico and Arizona we condemn the methods and aims of the Colorado men, and claim from the Government of the United States protection and equal rights.

NEW ENGLAND ASKING FOR FREE RAW MATERIALS.

The following letter from the Magee Furnace Company has been published:

BOSTON, Aug. 8.

Samuel W. Mendum, Secretary, Boston, Mass.:

DEAR SIR: In reply to your favor of August 5th, requesting my opinion as to the correctness of the views of the Hon. John F. Andrew in reference to the duties upon coal, iron ore and crude iron, I beg to say there can be no doubt whatever that the interests of the New England States absolutely demand a reduction in the duties imposed upon these articles.

I am a consistent Republican, and believe in the principle of protection. I believe the United States are peculiarly situated, inasmuch as their home market is greater than any other country with whom we come in competition in the markets of the world, but I believe there is such a thing as being overprotected, and in this duty on pig iron (which has remained practically stationary for over seventeen years, while the development of the country and the increase and cheapening of production have lowered the price from $40 and odd a ton down to $17 or $18), the great injustice is seen of a specific duty.

English iron was selling in 1872 at about $32 a ton, and the duty was practically 20 per cent. With English iron selling as to-day at $13 a ton, it is over 50 per cent ad valorem duty. This shows a manifest injustice, and is the direct cause of the decline in the manufacture of iron and its products in the New England States.

This, of course, applies principally to the manufactures of iron which most closely approach the raw material in nails, rolled iron, and plate machinery, bridge iron, etc. I believe that if an ad valorem duty of 25 per cent should be placed on pig iron it would be certainly all that the manufacturers of pig iron throughout the country could demand for their protection, and it would have the immediate effect of starting up industries now long idle throughout the New England States.

I have never believed in placing any import duties upon raw materials, among which I should class coal and iron ore. I could, if necessary, give a large amount of statistics for the purpose of substantiating the opinions I have herein expressed, but I think if any one would take the pains to learn the facts he could arrive at but one conclusion, viz.: that the best interests of the entire New England States would be served by the abolition of the import tax on coal and iron ores and a reduction in the duty on pig iron to say 25 per cent ad valorem.

A. N. PARLIN, Treasurer.

Pearls Found in Wisconsin.—Pearls have been found, it is reported, at Albany, Green County, on the Sugar River. They are found in clamsheels, between the membrane and shell, and are of all sizes, from a pin's head to a large sized pea, and of all shades. Some have been sold for as high as $75, and $100 has been refused for others. A shipment estimnted to be worth $1,500 was made to Chicago on the 5th inst.

The Forest Giants of Australia.—The reports as to the gigantic size of trees in Australia are often exaggerated and decidedly misleading. It is therefore interesting to read the report on this subject which has lately been furnished by the Conservator of Forests to the Victorian Minister of Lands. It appears that in the Dandenong Forest the tallest tree is 300 feet high, and that the largest in the Black Spur Forest is 302 feet high and 52 feet in circumference. At Mount Bawbaw there is a tree measuring 470 feet in height, in the Cape Otway Range 415 feet, and at Mount Conawarrabool 336 feet high and 69 feet in circumference.

New South Wales.—The Australian Water Boring Company have just completed No. 2 bore at Dunlop Station, Riverina District, at a depth of 940 feet, the supply being 1,200,000 gallons daily. The water is as pure and soft as rain water, being suitable for domestic purposes. The strata passed through was first 18 feet of sand and clay, next 50 feet of red sandstone rock, then 745 feet blue cretaceous rock, from and below which a supply of 18,000 gallons per day was obtained in a porous white sandstone rock which was 50 feet thick. After this the cretaceous rock was again struck and continued down to 840 feet, where the white porous sandstone was again struck, and was never lost till the full depth was obtained; the water increased at every foot until the overseer, becoming alarmed at the extraordinary supply, stopped the sinking. This solves the question of irrigation in the West of New South Wales.

The Great Ingot and Rail Record of the Illinois Steel Company, of Chicago, has succeeded in eclipsing all previous records on a single week's output of steel rails and ingots, as will be seen by the following schedule:

	Ingots. Tons.	Rails. Tons.
Monday, July 22	1,358	999
Tuesday, July 23	1,196	1,022
Wednesday, July 24	1,408	1,149
Thursday, July 25	1,309	1,143
Friday, July 26	1,295	1,051
Saturday, July 27	458	419
Totals	7,024	5,783

This is said to be the largest 11-turn product that has been made by any mill in the world. The rails were all 66-pound, except one turn, which were 75-pound, requiring two changes of rolls during the week. The Union Mill, at which this run was made, has recently been equipped to roll two two-rail blooms at once.

English Compound Locomotives.—Experience with the English locomotive which the Pennsylvania road brought over, and which has been undergoing tests for several months, according to a Pittsburg paper, will probably result in something valuable, though it is not probable that the English machine will ever be adopted as a whole. Of late it has been running from Long Branch to New York, and is becoming better liked every day for its improving performances. The final test will soon be made. If these experiments prove, what is generally believed by engineers now, that the compound type will produce considerably more power at less cost than the styles of engines at present in use, then the compound system will be adopted at once by the Pennsylvania Company and applied to all its locomotives as rapidly as possible. It is likely to be a year, however, before such a step is fully determined upon. One thing that has been discovered in the use of the "Pennsylvania" in regular service is that an English locomotive won't stand the wear and tear of American tracks. The engine is too rigid and provided with too short springs to make an easy runner over our roads. The racking it gets on rough bits of track makes necessary frequent trips to the shops for trifling repairs.

Compressed Air as Motive Power in France.—The use of compressed air as a motive power for tramways in France is extending. The system adopted is that invented by M. Mekarski, director of the Nantes tramways, which have been open since 1879. Two years ago the system was successfully applied on the tramways at Nogent, in the neighborhood of Paris, and more recently on those of Berne and Limoges. This year it will be substituted for horse power on the tramways of Lyons. The inventor asserts that his system is far more economical than horse traction—the cost of coal per day of a machine equal to 8 or 10 horse power being only 4s.—much cheaper than electricity or steam power, and that the machinery is simple and does not require a skilled mechanic to control it. The British consul at Nantes, in a recent report, states "that the tramways of that town, which are worked by the system of M. Mekarski, alluded to above, continue to give satisfaction. The cars are comfortable and run smoothly with little noise. They do not interfere with the general traffic in the streets, and their immunity from accidents is remarkable. The average speed is about eight miles per hour; but it can easily be increased or moderated. and in case of need an almost instantaneous stoppage effected."

Government Metallurgical Testing Works in New South Wales.—A proposal was recently brought forward in the New South Wales Parliament to the effect that the government ought, without delay, to erect, in some central position, close to a railway and near a coal mine, works for the scientific treatment in bulk of auriferous and argentiferous refractory ores; and that metallurgists and smelters of approved skill should be brought to that colony either from Freiberg or Swansea to superintend the construction and managements of such works. There is not in the colony an establishment where 10 tons of refractory ores can be scientifically treated. Such an establishment, it was contended, would give an immense stimulus to silver and gold mining in the country. An amendment was brought forward that the government should take steps for the scientific treatment in bulk, in the colony, of refractory argentiferous and auriferous ores. After discussion, the amendment was agreed to.

[In America the aid of the government in such private business would not be sought or tolerated; in fact the less the government interferes in private business, and the closer it is restricted to the simple necessary functions of government the better it is. Private enterprise conducts industrial business better than any government can.—ED. E. AND M. J.]

Electric Lighting in Mines.—The managers of the Iron King, Pabst, East Norrie, Norrie, Aurora, and Ashland iron mines, at Ironwood, Mich., have contracted with the Ironwood Electric Light Company to light these mines with 16-candle-power incandescent lamps, the work requiring in all some 1,200 lamps, and the peculiar conditions, as well as the fact that these are the first iron mines to be thus lighted, make it of interest to all engaged in mining matters.

The mines being very damp, it will be necessary to use heavily insulated cable, and the contractors have arranged to run only secondary wires below the surface, so that the potential at no point will be higher than 60 volts. The wall wires will be run in heavy molding, and at every drift sockets will be placed, so that flexible cords may be run into the stopes and lamps attached thereto. Along the levels lamps will be located every 40 feet, and at the intersection of the levels and shafts there will be two lamps. To provide against accident, two circuits will be run into each mine, one on each side of the levels, so that in case one circuit should give out or become interrupted the other will continue to furnish light.

Various sized motors, ranging from 7½ H. P. to 60 H. P. will be employed in the different work required. Cameron or Dean pumps will be used, and the hoists will be set up by an Akron firm.

The apparatus will be furnished by the Thomson-Houston Electric Company, and the work done under the direction of Mr. F. N. Bosson.

Smoke.—According to F. Fischer, the burning of coal gives rise to more smoke than is the case with wood, turf or lignite, on account of the greater cooling effect of fresh additions of the fuel on the fire, and the solid particles composing the smoke, diffusing less readily than a pure gas with the incoming air, tend to escape unconsumed in their passage over the fire. Smoke seldom consists only of soot, but is usually contaminated with tarry matter which gives to the soot an unpleasant smell and a stickiness which causes it to adhere to the place on which it falls. On this account brown smoke can be a greater annoyance than the black variety. Of the numerous proposals for smoke prevention, those for removing the smoke by so-called soot-catchers or by washing the chimney gases can only lessen the annoyance to the neighborhood, but do not prevent the loss of heat arising from soot deposits in the boiler flues. The introduction of air behind the fire is mostly prejudicial, as it only cools the mixed gases. A better plan is to conduct the smoky gases through a glowing hot brick grating. The more correct method of procedure is to prevent the formation of smoke by introducing the fuel continuously and moving it forward automatically at the same time that a movement of the firebars secures a passage for a regular air supply of air. Gas firing is strongly advocated by the author, as it may well be; but if solid fuel such as coal is to be used the remedy, or at least mitigation, of the smoke loss and inconvenience is to be sought in more perfect combustion, whatever the details of furnace construction may be; and effort should be directed in this line, as the author implies, rather than toward suppressing the smoke, dust, etc., after formation.

PERSONALS.

Thomas A. Edison has arrived in Paris.

Ex-Mayor Abram S. Hewitt returned from Paris on Saturday last. Mr. Hewitt had been away four months.

J. B. Wheeler, president of the Aspen Mining and Smelting Company, is expected in New York for a few days next week.

Col. Fielding Burnes, brother of the late Representative Burnes of Missouri, has resigned the place of special disbursing agent of the Geological Survey.

The tenth semi-annual convention of the Association of Edison Illuminating Companies began at Niagara Falls on the 14th inst. John I. Beggs, of New York, was re-elected President.

Mr. W. C. Wynkoop, who has been the secretary of the Colorado Mining Stock Exchange since its organization has resigned and his deputy, Mr. D. H. McClellan, has been chosen to fill the vacancy.

Superintendent C. P. Laymer, of the Kansas City Coal and Coke Company's mines, at Carbon Hill, Walker County, Alabama, was shot on the 14th inst. from ambush while riding on horseback.

The State Department at Washington has been notified of the appointment of the following delegates to the conference of American nations to be held in Washington next October: From Mexico, General Angel Ortiz Monasterio; Venezuela, Mr. Nicanor Bolet Pieraza.

Mr. Elwin Ludlow, until recently the superintendent of the Minera Railroad and Mining Company, and the Broad Mountain Coal Company, of Shamokin Pa., has accepted the position of General Superintendent of the Choctaw Coal and Railroad Company, of McAlister, Indian Territory.

The *Mining Industry* of Denver, Colo., says to Mr. Dennis Sweedy is due the prompt action of Colorado miners in regard to Mexican lead importations. To his energy, earnestness of purpose and expenditure of money, is due the fact that Colorado has taken an active part in the necessary work.

We have received from Mr. John Birkinbine notice of the tenth annual meeting of the United States Association of Charcoal Iron Workers, which will take place on September 17th, at Milwaukee, Wis. The excursions will embrace visits to important mines and iron works, and papers of special interest to those engaged in the production of ore, pig, and manufactured iron will be read and discussed.

The American Society of Microscopists are to hold their National Convention in Buffalo on August 20. The Pittsburg delegates are C. C. Mellor, C. G. Milnor, G. H. Clapp, Mr. Cherry, Dr. Chevalier Q. Jackson and W. J. Prentice. C. C. Mellor is to give some of his original researches and Dr. Jackson is to lay before the society some of his investigations of the bacteria of ice. Some of the party will go to Toronto, Canada, where they will attend the meeting of the American Association for the Advancement of Science.

OBITUARY.

H. J. W. Gaff, a prominent mine-owner of Glenwood Springs, Col., died last Friday.

Judge John Irwin died in Bellefonte, Pa., on the 14th inst. of paralysis, aged 81 years. He was one of the oldest iron masters in that vicinity. He was an associate judge of the county several years ago.

E. J. Remillion, Superintendent of the Kansas City Switch and Troy Works, died on the 10th inst. in that city. He was well-known among railroad men throughout the country as the inventor of the three-throw switch.

INDUSTRIAL NOTES.

The Columbia & Susquehanna rolling mill, at Lancaster, Pa., announces that after August 19 they will pay puddlers $3.90 a ton, instead of $3.85, as announced in our last issue.

The Penn Iron Works, of Lancaster, Pa., announces the resumption of operations on August 19th at $3.85 per ton for puddlers. Five months ago 250 men went on strike, when the wages were reduced to $3 50 per ton, and since that time the mill has been idle.

The new puddle mill of the Ellis & Lessig Steel and Iron Company at Pottstown, Pa., just completed, was put in operation on the 14th inst. There are 12 new furnaces, which will employ nearly 150 additional workmen when in full operation. The old mill had eight puddles and the entire mill, with its 20 furnaces, is the largest puddle mill in Pottstown, though not as large as the upper and lower mills of the Pottstown Iron Company together.

The Mahoning Valley Iron Manufacturers' Association have issued an abstract showing the tonnage from July 1, 1888, to July 1, 1889, of the mills and furnaces located in Youngstown, O. The figures show that the mills furnished 755,342 tons, and the furnaces 1,678,615 tons, of which 1,884,869 tons were in-coming and 548,988 tons out-bound freight. The total volume of tonnage, as indicated by these figures, shows an increase of 16 per cent. over the year previous.

A despatch from Harrisburg says there is not now likely to be any further trouble among the employés of the Pennsylvania Steel Company. They have been notified of an increase of wages from 2½ to 10 per cent, which restores the wages paid before the reduction, several months ago. Later, it is reported that although the company has advanced the wages of its men, the latter insist upon organizing as a branch of the Amalgamated Association of Iron and Steel Workers, notwithstanding the opposition of the company.

The scale for the Beaver Falls Iron and Steel Works, of Carnegie, Phipps & Co., has been settled, except for the rod mill, and for the first time in a number of years this mill is working under Amalgamated terms. When the mill was known as the Hartman Steel Works, the Amalgamated Association twice attempted to organize the men, but were defeated each time after long strikes. This year, however, Carnegie, Phipps & Co. intimated to the officials of the A. A. of I. & S. W. that no objection would be made by the firm if the men were organized. The strike in the rod mill is still on, but it is thought that a compromise will be effected shortly.

The Directors the Reading Iron Company, the successors of the Reading Iron Works, which failed a few months ago, held their first meeting at Reading, Pa., on the 13th inst. The following permanent officers were elected: President, George F. Baer; General Manager and Treasurer, Frank C. Smink, and T. O. Yarrington, Jr., clerk. The different departments will be in charge of the following: Albert Borden, furnaces; Simon Seyfert, rolling mills: E. W. Wolf tube works; John G. West, Scott foundry. Arrangements are being made to start the rolling mill next week, and the other departments gradually, so that the entire plant will be in full operation by the middle of September.

Messrs. Jones & Laughlins, of Pittsburg, have put in operation in the new mill of their American Iron and Steel Works a car for carrying billets and blooms to the rolls, which may do away with the huge tables with their many revolving rollers now in use. The car is operated underneath by a cable, and has a flat chilled iron bed. It runs from the shears to the rolls, and is raised and lowered like the hydraulic tables. On the opposite side of the rolls is another car, upon which the bloom rests when it comes through the rolls. The advantage of this car over the table is that it is safer for the men working around the rolls, who are in constant danger of having their hands caught by the wheels on the table. The car is said to be quite successful.

CONTRACTING NOTES.

The Pennsylvania Railroad has just awarded contracts for the construction of 5,000 coal and freight cars, most of which will be built west of Pittsburg, where, it is claimed, cars can be built cheaper. There is and has been a constant and increasing demand for freight cars during the last two years, of which cognizance had to be taken finally, and it is believed that the present order will be sufficient.

An advertisement has been issued by the Navy Department for steel plates for the armor of the battleship Texas. The bids will be opened on October 1st, at which time proposals will also be opened for furnishing the materials to be used in constructing the monitor Amphitrite.

MACHINERY AND SUPPLIES WANTED AT HOME AND ABROAD.

If any one wanting Machinery or Supplies of any kind will notify the "Engineering and Mining Journal" of what he needs, his "Want" will be published in this column.

Any manufacturer or dealer wishing to communicate with the parties whose wants are given in this column can obtain their addresses from this office.

No charge will be made for these services.

We also offer our services to foreign correspondents who desire to purchase American goods, and shall be pleased to furnish them information concerning American goods of any kind, and forward them catalogues and discounts of manufacturers in each line thus enabling the purchaser to select the most suitable articles before ordering.

These services are rendered gratuitously in the interest of our subscribers and advertisers; the proprietors of the "Engineering and Mining Journal" are not brokers or exporters, nor have they any pecuniary interest in buying or selling goods of any kind.

GOODS WANTED AT HOME.

106. Wanted, addresses of parties who manufacture a boxing or lining that can be used without oil or greasy lubricator.

107. Shingle machine—wanted full description and prices for the complete outfit delivered. South Carolina.

108. Electric motors, ⅛ to 1 H. P., second hand. New York.

109. Clay-working machinery, especially brick and tile presses; full particulars. Colorado.

110. Water motors; one small motor. Michigan.

111. One 45 H. P. engine and boiler. Alabama.

112. One self-feed cut-off saw. Alabama.

113. Ten slat machines. Alabama.

114. One saw-mill for cutting cedar for pencils. Alabama.

115. Three blocking machines. Alabama.

116. About 100 feet shafting. Alabama.

117. About 30 pulleys. Alabama.

118. Conveyors and elevators. Alabama.

119. A blower fan for a factory for making cedar pencil slats. Alabama.

Nos. **111** to **119**, inclusive, are for one concern in Alabama.

120 Electric Light Plant. Wanted estimates complete for lighting two tunnels, one 600 feet and one 1,500 feet; two shafts, average depth 600 feet; mill, office and store. Wyoming.

121. Engine. Wanted prices on a 70 H. P., high-speed, common slide-valve engine.

122. Cable Railroad. Bids on three miles overhead cable railroad, double, or six miles single, for a Western coal mining company.

123. Exhaust fan and pipe for shavings and dust for a lumber company. Georgia.

124. Molding machines, slab cutters, dry kilns, etc., for a lumber company. Georgia.

125. Engine—a sixty H. P. Georgia.

126. Locomotive. Wanted a light motor, standard gauge. New York.

149. Wind mill and pump. Nova Scotia.

150. Machinery and complete equipment for a large mining, concentrating, and smelting plant. Colorado.

151. Flame furnace, about 10 or 12 inches in diameter, for heating iron for steam hammer in agricultural implement works. Tennessee.

152. Ten-ton ice machine. Florida.

153. Plant for irrigation. Florida.

154. Laundry plant. Florida.

AMERICAN GOODS WANTED ABROAD.

127. Ten-stamp mill, complete (750 to 800 pounds head).

128. Concentrating tables for concentrating about twenty tons of pulp per twenty-four hours.

129. Light saw mill to cut boards and bill stuff.

130. Water-wheel, to work under head of 250 feet and furnish 50 to 75 H. P.

131. Electric motors to furnish 50 to 75 H. P.

(Nos. **127** to **131**, inclusive, are for a mining company in Honduras, C. A. No piece is to exceed 1,500 pounds.)

132. Tools and supplies; hammers, picks, shovels, drill steel, wheelbarrows, blacksmiths' outfits (100-lb. anvil and bellows), and carpenter's outfit. Honduras.

133. Dynamite, caps and fuse. Honduras.

Nos. **132** and **133**, one order, small quantities, for Honduras, C. A., to be delivered in New York.

134. Electric motors—information wanted on electric motors as applied to mine pumping, with approximate cost of plants. Mexico.

135. Mining Machinery. A firm in Melbourne, Australia, want catalogues of mining machinery.

136. Paper of all kinds, paper bags, and machinery for making cardboard boxes for confectionery trade and for making paper bags for grocers' use. Christchurch N. Z.

137. A firm in Melbourne, Australia, would like to correspond with manufacturers of rams, windmills, pump, single, double and treble barrel, engineers' tools and anti-friction metal.

138. A firm in Brisbane, Queensland, wants letter files, desks (Cutter & Son, or same style), pumps (wants sole agency for) wood stoves.

139. Hams and bacon—hams to be packed 100 pounds to a case in fine salt, to run from 11 to 18 pounds, and canned goods of all kinds, wanted by a firm in Brisbane, Queensland.

140. Well-boring machinery—a firm in Sydney, N. S. W., wants full particulars, price, etc. In a letter they say: "Your manufacturers don't appear to realize the immense trade they could do here in well-boring machinery; we can do an enormous trade if we can find a really good outfit."

141. Lubricants—Dreher's Railroad Compound machinery oil for saw-mills, and grease that will stand a hot climate, by a firm in Perth, W. A.

142. Patents—a firm in Christchurch, New Zealand, wishes to arrange with a good patent attorney to take out a number of patents for them in the States and Canada. Particulars to be sent to I. J. P., care ENGINEERING AND MINING JOURNAL.

143. Pipe, boiler and pump to irrigate a farm. The amount of water necessary is 200 miner's inches. It will have to be carried half a mile in pipe and raised one hundred feet. Wanted prices and particulars. Idaho.

144. Wanted—Addresses of manufacturers making machines for grinding old fire brick. Second-hand machine will do. New York.

145. Engine, 10 H. P., and machine for turning out buckets and tubs. West Virginia.

146. Boring and mortising machine, trimming lathe, planer and shingle machine. Texas.

147. New or second-hand outfit for a 50-ton iron furnace, including one iron furnace stack, 20 × 65 feet; one large engine, steam cylinder, 30 × 48; blast, 48 × 64 or 72; six large steam boilers complete; three fire-brick stoves; one hoisting engine, with hoist; three large water pumps, and all other necessary appliances. Ohio.

148. Electric light plant for planing mill. Mississippi.

155. Ten-ton ice machine.

GENERAL MINING NEWS.

Shipments of iron ore from the mines of the districts mentioned below for the season up to and including August 7th, as reported by the Marquette *Mining Journal*, were as follows:

	Tons. 1889.	Tons. 1888.
Marquette, Marquette District....	785,522	305,042
St. Ignace, " " ..	25,255	63,457
Escanaba, " "	519,089	419,567
Gladstone, " "	10,366	.....
" " Menominee District...	16,195	.....
Escanaba, " "	883,450	495,986
" Gogebic District.....	153,932	108,589
Ashland, " "	841,900	483,761
Two Harbors, Vermillion District.	486,863	155,495
Total, tons.....	3,722,572	2,031,897

*The shipments from Gladstone, Marquette District, are shipments from the Republic mine, and from Gladstone, Menominee District, shipments from the Chapin and Ludington mines.

ARIZONA.

BARVOQUIVARI GROUP OF MINES.—Operations are shortly to be commenced by Messrs. A. B. Sampson, E. M. Hudson and Chas. Bent on these properties in the Barvoquivari mountains, consisting of 30 claims, and including what was formerly known as the Humboldt mines. These mines were originally discovered by Messrs. Hudson and Bent in 1877, says the Tucson *Citizen*, and have been worked more or less ever since, and a large amount of ore has been shipped from some of the claims. Two or three of these claims were leased by the Humboldt Mining Company, who abandoned a mill there after a three weeks' run, not because there was no ore to work, but for the same reason that has caused hundreds of similar failures in this territory—mismanagement and wrangling among directors or stockholders. An engine and boiler is now in position and the mill is on the road. It will be put up on the same location occupied by the old Humboldt, mill, and it is expected to have everything ready to start up inside of thirty days. Plenty of oak timber is near, and a good well furnishes an abundant supply of good water. A pump is already in the well, ready to raise the water whenever steam is applied. The ore is concentrating, and, taken all through, the claim will run well. On the Octopus claim about 500 feet of development work has been done. Much very high-grade ore has been encountered on these claims, but it is mixed with rock of less value, but as a whole averages far above the paying figure. This camp is 60 miles south of Tucson, and there are now 20 men at work, and when the mill is started 50 men will be employed. Over 6,000 tons of ore is now on the various dumps ready to put through the mill.

CARABI MINING COMPANY.—Mr. John Devine is general manager of the mines of this company in the Comobabi mountains. He reports that the work of boring for water has commenced, after a great deal of vexatious trouble in getting the machinery up. The well is now down about 40 feet. A company from Cleveland, Ohio, has the contract for boring the well and putting up a 40 ton concentrating mill. No other work is being done now, but the ore is on the dump and in sight to commence operations as soon as the necessary water is secured.

COCHISE COUNTY.

South from Tombstone at a place called Santa Rosa, at the head of the Cumpas River, a 20-stamp dry crushing, roasting and chloridizing silver mill is being erected by an American company, in which several Chicago gentlemen are interested, on La Union and Ojo Negro mines, better known as the Kirk Boys' mines from the former owners.

CALIFORNIA.

AMADOR COUNTY.

AMADOR GOLD MINE (LIMITED).—About eighty men are employed, says the Amador *Ledger*, getting the mine in shape for the 60-stamp mill, and finishing the surface work necessary to start the mill. A force of men are at work on the mill reservoir and ditch for the 18-inch pipe to the mill; another crew are laying the pipe. The old hoisting works at the south shaft have been taken down, and the new works started. The new plant, with a few trifling exceptions, gives perfect satisfaction, and is a model for hoisting, pumping and crushing. The company are sinking a winze at the 250-foot level near the north shaft on the middle ledge, and extending the drifts and cross cuts at the lower levels.

PLYMOUTH CONSOLIDATED GOLD MINING COMPANY.—Secretary H. W. Lazelle submits the following financial statement to August 1: Gold bullion produced since February (six months), $108,398 80; indebtedness January 1st, 1889, $15,446 93; January expenses, $4,651.03; February expenses, $5 839.56; March expenses, $7,760.66; April expenses, $7,528.87; May expenses, 7,395 42; June expenses, 7,444.06; July expenses, estimated, $8,000; total $64,066.53; surplus, 44,332.27.

Our special correspondent writes us, under date of August 6th, 1889, as follows:

BUNKER HILL.—This mine, at Amador, is running along about as usual. The English company has still under consideration the purchase of this fine property. We hope they will decide to take it, as there is no property on the lode that offers greater inducements for a strong company to take hold and do legitimate mining.

COSMOPOLITAN.—At Dry Creek, midway between Plymouth and Amador, we find the Cosmopolitan mine. Here the work of developing what appears a good property goes steadily forward. This company has let the contract to Knight & Co., of Sutter Creek, for the erection of a 30 stamp mill, and I notice a large amount of the lumber has already been delivered. This company has a flue mill site and water-power.

HENRY CLAY.—Recently purchased by C. T. Crocker, of Fitchburg, Mass., lies parallel with and west of the Cosmopolitan. Mr. Crocker's son is in charge of this property and has commenced prospecting in a small way this season. The indications are they have a good property.

KEYSTONE.—This mine, also in Amador, is running its 40 stamps, and, although not paying as well as in former years, the company intend pushing work ahead and opening up the 1,500-foot level this season.

NEW LONDON.— At the New London, also at Plymouth, everything looks prosperous. Ground has recently been broken for a 40 stamp mill, and the machinery is on the way from San Francisco. The contracts for lumber have been let to our local dealers, and work of building will be pushed right ahead.

PLYMOUTH CONSOLIDATED.—Again I have to report this mine shut down, and it looks as if it would be some time before it will start up again, *i. e.*, to run its mills. There has been a rumor for some time that the company intended to shut the mill down on August 1st. On the night of July 23d a big cave occurred in the mine, and work was at once ordered stopped. It is not known if the ground was allowed to cave intentionally or not. Like the noted fire in this mine, that is something no "feller" will ever find out. There are a few men employed in the shaft, and it is said they intend sinking another hundred feet, but that remains to be seen. The people of Plymouth are perfectly discouraged, and well they may be. It is reported on the very best authority Mr. Montgomery, the superintendent, has been appointed to a very responsible position in Mexico and has gone or is about to go there. He has left William Jones, foreman of the Plymouth Consolidated, in charge at Plymouth for the present. It looks to the general public as though the old management had decided to give way and let some one else manage. If such is the fact it may be a good thing both for the property and the town.

COLORADO.

CLEAR CREEK COUNTY.

DOVE'S NEST MINE.—This mine owned by the Balmoral Mining Company, of New Orleans, according to the Georgetown *Courier*, is producing 30 tons a day of concentrating ore, which is run at the Berry concentrator. They are sorting out the smelting iron. The vein is one of the largest opened up in this end of the county, being over 6 feet of ore. The mine is supplied with the very latest improvements in hoisting works, ore houses, etc. Mr. George C. Berry placed this mine in New Orleans.

MAMMOTH LODE.—This claim on Brown Mountain has been sold by Wellington Downing, of Erie, Pa., to W. S. Franklin, of Jackson County, Missouri, for the sum of $27.000.

OHIO GULCH MINING COMPANY.—This company, a Chicago enterprise, which is to carry on business in Clear Creek County, Colo., have filed articles of incorporation with the Secretary of State. It has a capital stock of $150,000. The property of the company, according to the Georgetown *Courier*, consists of a group of 19 lodes on Ohio and Capitol mountains. Tunnels have been driven into each of these mountains about 250 feet, and lode No. 1, cut in the Ohio Mountain tunnel, showing a large vein carrying mineral which assays as high as 15 ounces gold and 82 ounces silver per ton, and 30 per cent copper. Mr. D. Drummond, the Superintendent and projector of this enterprise, states that work will be resumed at extending the tunnels this month. The company will probably erect a plant of machinery which can be used in both tunnels.

EAGLE COUNTY.

[From our Special Correspondent at Gilman.]

Shipments per week hold well up to 700 tons, which will average $50 per ton. The pay roll on Battle Mountain foots up over $10,000 per month at present. All of the lime properties which recently began operations in the lower contact are looking well. Work on the Little Chief (Gilman Mining Company) is being pushed vigorously. The Belden, which has been sinking for the second contact, dropped into 18 inches of ore last week, an evidence of the close proximity of a body. The Spirit shipped 200 tons last week to the Harrison Reduction Works, Leadville. The main ore body is still increasing in area, and 40 cars of ore per month will be the output. This body averages $50 per ton. The ore bins of the Cleopatra are full, about three to four cars being extracted from the main chute daily. In the neighborhood of $50,000 has been shipped from this property under the present lease. As the lessees pay only 20 per cent royalty, the profit enjoyed by them has been considerable. The value of this body is $50 per ton. An important mining event occurred here last week in the form of a consolidation between the Rocky Point and Polar-Accidental, two widely known quartzite groups. They are adjacent properties, controlling about 2,000 feet of the apex of the vein. The consolidation is one of vast importance when considered in a legal light, governing, as they do, such an immense portion of the apex. Both groups have figured as prominent shippers, and operations will be commenced extensively through the Rocky Point incline, as the facilities for handling and shipping are cheaper. The suit of the Battle Mountain vs. Champion, governing the apex question, is the first case set for trial in the September term of the U.S. Circuit Court at Denver, before Judge Brecon. This week some ore of immense value was extracted from the Badger incline on the Ground Hog group. From a chute of talc were taken lumps of native silver the size of one's fist. The ore will assay close to $18,000.

GILPIN COUNTY.

CLAUDIA J. MINING COMPANY.—This company has been organized, with principal office at Denver. The capital stock is divided into 300,000 shares, with a par value of $1 each. The directors for the first year are B. H. Koch, Chris Smith, Mrs Claudia J. Adams and Oria E. Adams. The Claudia J. Mine is located about six and one-half miles from Black Hawk, just above the old town of Wide Awake, in Hawkeye mining district, Gilpin County, Colorado. It is an extension of the old Stewart lode, which was worked successfully in the early days of mining in Gilpin County. It is developed by a tunnel 300 feet, and another 50 feet; one shaft 80 feet deep with a drift of 96 feet; another shaft 40 feet and four other openings on the vein. In all the openings mentioned there is ore in place, the ore streak being from 4 inches to 2½ feet in thickness. The majority of the ore has been treated at the stamp mills near by. It is stated that the lowest run was 5 ounces gold, and the highest 17 ounces gold to the cord. One lot of 3½ cords (about 35 tons) was treated at the stamp mill, and the average was 7 ounces gold to the cord. After this run was made, an average sample of the same ore was taken to the smelter and gave a return of $143 to the ton.

PRIZE CONSOLIDATED MINING AND MILLING COMPANY.—This company's property will be sold at sheriff's sale on the 17th day of September next, at 2 o'clock P. M., under a decree and foreclosure of a certain mortgage made by the company to Edgar M. Johnson, trustee, to secure the payment to certain persons of an aggregate sum of $67,840. The property consists of a group of mines on Jones mountain, Nevada district, as also a 24-stamp steam mill and mill site in Black Hawk. Holders of bonds or coupons of the said company may use the same in payment of their bids, or of so much of the amount of the bid which such purchaser would be entitled to receive out of the net proceeds of such sale had it been sold to other parties for the same amount.

GUNNISON COUNTY.

SYLVANITE.—Superintendent Murphy is arranging to start the air compressor drill in the Sylvanite tunnel at once, says the Elk Mountain *Pilot*, and he expects to have twenty and probably forty men at work on this mine all winter. Mr. Baker is securing funds to work the mine. No ore will be taken out, but it is proposed to put the mine in good shape by running tunnel to the vein, and doing other development work. The tunnel will have to be run about 1,100 feet to cut the vein, and with the air drill about eight feet per day can be driven.

OURAY COUNTY.

INDIANA.—A stock company has been formed to work this mine, of which Governor Crawford is president; capitalized at $200.000, divided into 20,000 shares. The company will actively prosecute development.

SAMOA MINES.—This group of mines in the middle quartzite, and just below the Center and Cascade groups, is now showing up in great shape. In one of them—Samoa No 3—the lowest test that has yet been made, says the Ouray *Plaindealer*, was 6 ounces gold; next lowest, 19 ounces, and from that up to 121 ounces. The ore body is continuous, and is from 18 inches to 3 feet in width without a break on either side of the drift, which is now in about 23 feet. In Nos. 1 and 2 not so much work has been done, but the ore is of the same quantity and quality so far as developed.

PITKIN COUNTY.

It is reported that the new sampler at Aspen being built near by the Denver & Rio Grande depot is progressing rapidly. It is styled the Driver Public Sampling Works Company. The members of the company, according to the Aspen *Chronicle*, are Messrs. Chas. Driver, J. E. Rockwell and W. J. Miller. Mr. Driver will have the superintendency or management of the new sampler. The main sampler building is 100 × 70 feet, with the required wings, or additions, for ore bins and storing sheds. It will have a capacity of 300 tons per day, and is to be very complete in every detail. All the necessary machinery has been purchased and will soon arrive. The McFarlane Company, Central City, Colorado, has taken the contract for construction, which is to be completed in 45 days.

APEX.—The ore body uncovered in this mine recently on Porphyry Mountain, according to the Aspen *Chronicle*, has proven to be a genuine hard carbonate ore, which is improving with depth, jumping from 40 and 60 ounce to as high as 80-ounce ore. As soon as new machinery is placed on the Apex it will be operated for its ore production and steady shipment will be kept up regularly.

CARLISLE.—This property now has a shaft 100 feet deep with a drift of 100 feet, at the breast of which is a four-foot vein of 20 ounce ore. It is stated that this mine has a well developed contact or 17 feet, one of the largest ore bodies in Tourtelotte Park.

CONAMABA.—Work is progressing in this well-known property, which has an old shaft of 600 feet, which, it is reported, will be driven to a depth of possibly 900 feet to reach the contact.

IOWA CHIEF.—This property, says the *Chronicle*, lying between the Camp Bird and Edison, has a good body of mineral, which was reached last week. George W. Crowe, the lessee, is working upon the south end of the claim. The strike made last week is in the north drift. The streak, which is small, is of

spar and lime, but is of good grade, and is improving.

NO. 7.—Messrs. Phil Harrington, A. P. Moore, J T. McCarty and James Murray, who are working a lease in this mine in Tourtelotte Park, report a strike of about one foot of mineral in the drift which runs off about 40 feet from the shaft of 111 feet. The ore is brown carbonate, similar to that of the North Star and Silver Belle, and contains about 40 ounces of silver per ton. The No. 7 is now at about the same depth as the ore bodies being worked in the Nor h Star and Silver Belle. The ore in the drift of this lease has been improving recently, and hopes are entertained for the early development of a richer ore body. The Walker lease of the No. 7 is now working in a mineralized bar of hard brown lime at a depth of 55 feet.

[From our Special Correspondent.]

ASPEN MINING AND SMELTING COMPANY.—Tip raise No. 6, in the Golconda (belonging to this company), shows a body of lead ore from 4 to 8 feet in thickness and 120 to 200 feet in length, with an average value of 35 ounces in silver and 26 to 27 per cent in lead. The daily shipment of the Aspen Mining and Smelting Company properties is 50 tons, chiefly lead, smelting and li ne fu ting ores

SMUGGLER MOUNTAIN TUNNEL.—At the foot of Smuggler Mountain the tunnel has been driven 140 feet since July 29th; the dimensions are 6 feet 8 inches by 7 feet 6 inches in the clear double track with a drainage channel 20 inches wide, 12 inches deep. The tunnel will drain and develope the Park-Regent and adjoining mines at about 1,200 feet.

PUEBLO COUNTY.

WESTERN FUEL COMPANY.—This company is now locating its shaft houses and machinery at its mines in the Canon City coal district. It has one shaft down 200 feet, and expects to be ready to ship coal to Pueblo market by the 1st of November. Mr. A. G. Francis, of Corona, Ala., has charge of the work.

SAN JUAN COUNTY.

CALUMET MINING COMPANY.—This company has been organized, backed by Chicago capital. Two hundred shares of $100 each is the capital stock. The resident agent in Colorado is John H. Werkheiser, of Silverton.

PORPHYRY MINING COMPANY.—This company has been organized to carry on business in the c unties of San Juan, San Miguel, and Ouray, with principal office in Pueblo. George F. Ernst, John O'Grady, R. S Journeay, C. E. Robideux, and J. G. Parrish are the directors named for the first year. The capital stock is placed at $300,000, which is divided into as many shares, and is non-assessible.

DAKOTA.

HARNEY PEAK TIN MINING AND MILLING COMPANY.—The Custer *Chronicle* says that sixty men are at present employed by this company, but this number must necessarily be increased in the near future, when contracts are let for the annual assessment work required by law upon the company's claims in and about Custer, of which there are no less than one hundred, requiring an outlay of $10 000.

INDIANA.

BROWN COUNTY.

The reported find of rich gold deposits along Bean Blossom Creek, in Brown County, made by a Cincinnati mining expert, caused considerable excitement in the neighborhood of the alleged discovery. In Jackson township, where the present find is located, it is asserted that gold has been found for many years. A few years ago an old California miner prospected in that section for some time, and claimed to have discovered valuable deposits. He organized a mining company without difficulty, and securing leases on a considerable area of the supposed rich field, proceeded to put in the necessary apparatus for wholesale gold digging. It is said that considerable quantities of the precious metal were found, but the claim finally ceased for some cause to be worked. A placer near Georgetown has recently yielded over $500 worth of gold, while a number of nuzgets, ranging in value from $2 to $10, it is said, have been found along the bed of the creek where the recently discovered rich deposits are said to exist. The Cincinnati expert has returned to Cincinnati for the purpose, so he stated, of securing the assistance of other experts and to get the necessary mining machinery.

KENTUCKY

ASHLAND FIRE BRICK COMPANY.—A correspondent writes that this company has shipped fire brick to Pineville, Ky., for the building of seventy-five coke ovens.

MEANS & RUSSELL IRON COMPANY.—At a recent meeting of the stockholders of this company at Ashland, Ky., John Russell was elected President, William B. Seaton, General Manager; Charles W. Means, Secretary, vice John Means resigned. Operating only one small charcoal furnace on a tract of 30,000 acres, it was concluded to reduce the holding of real estate by the sale of certain portions from time to time as opportunity occurred.

MICHIGAN.

HOUGHTON COUNTY.

COPPER FALLS.—It is probable that the management of this mine will pursue a conservative course, says the Houghton *Mining Gazette*, and in a few weeks close down their stamp mill. Exploratory work, however, will continue and the mine will be further opened up. At a 12-cent price for copper, the mine can pay expenses, but the net returns would be so small that the management believe it better to further develop the property rather than place their copper on the market at a price that will only just about pay expenses.

TAMARACK.—Tamarack No. 2 shaft was sunk during the month of July 97 feet, and will probably reach the lode during the present month.

TAMARACK JUNIOR.—No. 1 shaft was sunk during the past month (July) 90 feet, and while not quite reaching the point attained at No. 2 Tamarack, which was 97 feet, yet, considering the nature of the rock gone through, was a remarkably rapid piece of sinking. The shaft has now a depth of something over 1,000 feet.

IRON MINES.

MENOMINEE IRON COMPANY.—As indicated in the last issue of the ENGINEERING AND MINING JOURNAL, this company, owning the Florence, the Youngstown and the Iron River ore mines in Michigan, the stockholders residing in Youngstown, O., have sold all their interest, including the ore in sight, to a New York syndicate, represented by Ferdinand Schleisinger. The price paid, according to press reports, was $1,000,000. The purchasers already own large ore interests near where these mines were located, and, it is probable, expect to fix the price of ore in the future to consumers. It is further reported, as the ENGINEERING AND MINING JOURNAL intimated last week that the Schlesinger syndicate is soon to construct a railroad through the Menominee iron district, from Crystal Falls to Escanaba, Mich. A survey is to be made at once. The line will be between eighty and ninety miles long. The distance from Escanaba to Iron Mountain, where the Chapin mine, the principal member of the Schlesinger group, is situated, is only a little more than fifty miles; but Crystal Falls, where three of the Schlesinger mines, the Dunn, Youngstown and Armenia, are situated, is about thirty miles above Iron Mountain, and Stambaugh, at which place is the Iron River mine, is a dozen miles directly west of Crystal Falls. The road, in case it is built to Crystal Falls, will touch the mine at Florence.

MISSOURI.

Lee Merriwether, Commissioner of the Bureau of Labor Statistics, has addressed letters to prominent editors throughout the State, asking their co-operation in the work of securing statistical facts from owners of mines. He has traveled over Missouri recently and was surprised to find such a rapid and wonderful development of the mining interests, and he desires to have his reports contain matters of special interests in that direction as in others.

MONTANA.

MONTANA COMPANY, LIMITED.—The resident director at the mine makes the following report: Total weight of ore crushed during July, 6 489 tons; yield from the three mills, $101,200; working expenses for the month, $5 ,000 The estimated number of ounces contained in returns by assay being: Gold, 3,043 ounces; silver, 29 690.

DEER LODE COUNTY.

CHAMPION CONSOLIDATED MINING COMPANY.—This company has decided on the erection of a mill immediately. The site has been ch sen about one mile east of Deer Lodge, on a slope of the bench between Peterson Creek and the Deer Lodge River. A contract has been let to the Utah & Montana Machinery Company for a 20-stamp chloridizing silver mill, which is to be completed in November of this year. The Champion mine is now developed to the depth of 350 feet, with east and west levels at the 250 and 350. At the 250-foot level the lead is from 2 to 14 feet in width, and a large quantity of ore has been shipped from it, which has netted the company $1,400 per car. At the 350 the lead is in no place narrower than 4 feet. Comparatively only a small quantity of ore has been shipped from the depth of 350 feet, but that sent has netted the company $2 000 per carload. The sinking so far has been done with inadequate machinery. The company is now engaged in tearing down the old hoist and erecting a new building similar in size to those on the Chambers syndicate mines in Butte. The shaft is a two-compartment one throughout, and the company has let a contract to Fraser & Chalmers for hoisting machinery of a capacity sufficient to sink the shaft to the 1,200-foot level. All these improvements are to be put through without delay. The Champion has 2,000 tons of second class ore on the dump, on which it is estimated that they can make a saving of $15 to $20 by treating it themselves.

SILVER BOW COUNTY.

BUTTE & BOSTON MINING COMPANY.—All the operations of this company are being pushed with great vigor. Fifty men are at work on the new furnace buildings, and the framing has been about completed. Work is also well advanced on the furnaces themselves, and it is the hope of the company to get the plant in operation by the first week in September At the Silver Bow shaft, according to the Butte *Inter-Mountain*, a carpenter shop and a machine shop are being added to the buildings. The shaft is at a depth of 300 feet, and everything is in readiness to go to the 400, but sinking is temporarily delayed by the non arrival of the cage. From the 400 a crosscut will be run south to strike the vein, which at that point will probably be found 100 feet from the shaft. Sinking is also progressing in the East Gray Rock from a little below the 300-foot level, and the shaft will be carried down to the 400 The Silver Bow mill has been running steadily all week on ore principally from the Bell of Butte and the Gray Rock. The majority of the ore comes from the 200-level east on the Bell of Butte. The mill handles about 30 tons of ore per day. No trouble is being experienced from the scarcity of water, and none is anticipated. The water from the mine is not being used, but could be if necessary. The company has started heap-roasting of about 200 tons, north of the new furnaces, and will be ready to start the blast furnaces as soon as they are completed. The new smelter is fast nearing completion. The grading is completed and the structure is gaining prominence. It will be only of 100 tons capacity, and is erected for temporary use until such time as it is definitely agreed upon as to where the immense structure in contemplation will be erected.

BOSTON & MONTANA CONSOLIDATED COPPER AND SILVER MINING COMPANY.—The repairs and improvements at the lower works of this company are about completed and most of the plant is again in active operation. The three reverbatory furnaces are running, and Superintendent Couch hopes to get the two blast furnaces in operation very soon Work is progressing at the Harris & Lloyd tunnel property as fast as possible. The new hoist has been about completed and will be a duplicate of the Mountain View. The boiler house has not yet been completed. The new shaft on this property is a three compartment and is now down 120 feet. It will be sunk to the 250-foot, when a cross-cut will be driven north for the vein. The hoisting machinery at this point will be of a capacity to sink the mine to the 1,200. The new engine will be in place in about three months The new shaft on the Moose, also belonging to the Boston & Montana, is now at a depth of 120 feet This is also a three-compartment shaft. A crosscut was run 30 feet north from the 100-foot level in this shaft, and a vein four to five feet thick and carrying 40-ounce silver ore was encountered. This ore is used in enriching the Boston & Montana matte, which carries about 60 ounces of silver to the ton, amounting to about $1 200 in every carload of matte shipped. The lower works of the Boston & Montana are now all filled up with silver ore, and it will be necessary to lay off a few men in the old stopes at the Moose for a few days till the mill catches up. The few men who have been laid off at the Mountain View tunnel property and West Colusa will be put back when work is resumed in full at the lower works early next week.

GOLDEN MESSENGER.—This company's property on Trout Creek, some 10 miles from Cañon Ferry, is improving. They have placed a whim on the inclined shaft on the Little Dandy lode and sunk 50 feet, and in that distance the ledge widened out to 7 feet and gives every indication of being a permanent mine. Their shaft is now 125 feet deep in good ore all the way. The machinery for their mill has just arrived in Helena.

MOUNTAIN VIEW.—This mine has commenced sinking from the 800-foot level, their present terminus. The drifts, both on the 700 and 800, have opened up, much to the satisfaction of the management, with a quantity and quality of ore which is reported to equal all expectations. With this mine depth had to be acquired in order to pass through the oxidized ore that extends to the 600, though somewhat conglomerated above that station. Below it becomes more solidified and regular, and equally as rich in quality.

NEVADA.

ELK COUNTY.

The following summary of mining operations in the Tuscarora camp is compiled from the Superintendent's reports: A three-foot vein of low-grade ore has been cut on the 250 level of the Belle Isle mine. The upraise in the south end of the Navajo mine from the 350 level continues to yield some high-grade ore. At the North Belle Isle they will be ready to sink the shaft to-day. Concentrating ore showing seams of high-grade mineral is being cut in the east cross-cut on the 100 foot level of the North Commonwealth mine. On the 100-foot level the east cross-cut from the north drift has passed through ten inches of high-grade ore. The reduction of milling ore now on the surface at the Grand Prize mine will begin to-day. The bottom of the Nevada Queen winze, below the 450-foot level, looks as well as before. Work has been suspended in the winze until the 500 level can be opened. Two hundred and ninety tons of ore were shipped to the concentrator. The stopes in the Commonwealth mine are represented by the Superintendent to look well. Two hundred and twenty-four tons of ore were sent to the mill; average battery assay, $140 47 per ton. Bullion shipped, $12,259.58; bullion on hand, $17,000.

ESMERALDA COUNTY.

ESMERALDA, LIMITED.—This company has been organized in London with a capital of £500,000, in £1 shares, to enter into a contract with Consolidated Esmeralda, Limited, and the liquidator, A. K. Ann, for the purchase of certain gold and silver mines, mining lands, mining water, and timber rights, with all machinery, buildings, and whatsoever the property of the Consolidated Esmeralda, Limited, situate at Aurora, Esmeralda County, Nevada. There shall not be less than three nor more than seven directors. Qualification, 1,000 shares. The first are S. Crowder, E. Picard, G. T. Brown, A. Thomson, W. M Farmer, and A. E. Ann. Remuneration: chairman, £150; other directors, £100, with 5 per cent on net profits after 12½ per cent dividend.

STOREY COUNTY—COMSTOCK LODE.

CONSOLIDATED CALIFORNIA AND VIRGINIA MINING COMPANY.—A shipment of $93,929 was received from the mine on the 7th, and $16 294 was sent to the Carson Mint on the same day. This completes the product for the last fiscal month, and the total is $245 808. The Morgan mill crushed 3,371 tons ore, yielding $26 217 in gold and $39 526 in silver, or at the rate of $7.77 and $11.72 per ton respectively. The Eureka mill crushed 550 tons, yielding $6,425 and $7,003 respectively; and the California

mill crushed 7,020 tons, yielding $78,784 and $87.852 respectively. The bullion product of the Consolidated California and Virginia mine for the first ten months of the current fiscal year, according to the San Francisco *Bulletin*, is as follows:

	Tons Ore.	Gold.	Silver.
October	12,736	$147,201	$192,614
November	9,347	105,423	114,951
December	11,195	134,096	133,535
January	10,332	137,476	130,372
February	9,890	126,797	147,401
March	11.783	152.301	186,155
April	12,830	131,053	164,779
May	12,686	132,077	164,165
June	10,770	137,999	144,577
July	10,941	111,427	134,381
Total	112,510	$1,315,850	$1,512,960

CONSOLIDATED NEW YORK MINING COMPANY.—At the annual meeting of the stockholders in San Francisco, on the 3d inst., 96,000 shares were represented. The following directors and officers were elected: President, Charles H. Hirshfeld; Vice-President, M. Rehfisch: Trustees, Max Jaffe, W. C. Watson and W. W. Erskine. Chas. E. Elliott was re-elected Secretary, and A. C. Hamilton Superintendent. The secretary's financial statement showed an indebtedness of $13,180.73. The superintendent's report thus describes the important development of ore on the 800-foot level: "On the 800-foot level we repaired the old west drift a distance of 130 feet west of the shaft. At that point a drift was started in a northeasterly direction, and continued a distance of 225 feet. At that point a drift was turned in a northwesterly direction and continued a distance of 165 feet. At this point a cross-cut was driven west, which cut about 18 feet of quartz, 3½ feet of which, lying immediately under the east clay of the ledge, gave good assays. The northwest drift was then turned north and driven a distance of 125 feet, the drift following the east side of the ledge. In the meantime a raise was made on the ore found in the west cross-cut, which is now up a distance of 30 feet, the roof giving assays from $20 to $25. We are in hopes that the present prospect may develop into a body of ore that will prove of value to the stockholders.

QUARTERLY YIELD OF THE COMSTOCK.—According to the sworn statement of superintendents filed with the Assessor of Storey County, Nev., the yield of the Comstock mines for the quarter ending June 30th, 1889, was as follows:

	Tons of ore.	Bullion produced.	Average per ton.	Cost of production.	Net yield.
Alta	1,871	34,967.29	19.00	40,859.34	+5,892.15
Challenge	413	7,636.13	18.50	14,954.18	+7,318.05
Confidence	1,602	27,111.59	17.00	35,526.47	+8,414.58
C. Cal. & Va.	36,286	725,529.03	20.00	497,202.32	228,326.71
Chollar	4,271	68,626.85	14.40	108,593.03	+39,966.18
Y. Jacket	8,434	175,386.74	20.00	155,517.12	19,869.62

+ Cost of production above yield.

Bullion tax on production: Alta, no tax; Challenge, no tax; Con. Cal. & Va., $6,849.80; Chollar, no tax; Yellow Jacket, no tax.

Ore worked at Hully's stamp mills in Six-Mile Canon produced bullion valued at $3,200; total cost of reduction, $3,070; yield above cost, $130; tax, $2.60. A recapitulation of the above shows that the total number of tons of ore extracted during the above quarter, according to the above statement was 53 363 tons, producing bullion valued at $1,042,327 94. The total product of the Savage, Hale & Norcross, Justice, Overman and Crown Point, not included in the above list, will swell the total to $1,250,000. The bullion product of the lode during the quarter ended March 31, 1889, was $1,300,000, as given in full in the ENGINEERING AND MINING JOURNAL of May 18th, 1889.

NEW YORK.

ONEIDA COUNTY.

The Booneville natural gas well is reported to have reached a depth of 980 feet. The last report is that the depth of the Sandy Creek well is 1,280 feet. It is said that there is a well in the village of Vernon, and that they have formed a company to work it.

OHIO.

The Pennsylvania & Lake Erie Dock Company has applied for a charter to build docks at Fairport, O., to handle ores. The incorporators are H. C. Frick and H. M. Curry, of the Carnegie companies; John W. Chalfant, of Spang, Chalfant & Company; Horace Crosby, of the Republic Iron Works; John Z. Speer, of Shoenberger & Company; H. C. Fownes, of the Carrie Furnace Company, and C. D. Fraser.

The company, as will be seen, is composed of blast furnace owners in Pittsburg, who are large consumers of ore, and, in order to facilitate transportation of ore, they intend to erect extensive docks at Fairport and ship over the Pittsburg & Western.

PENNSYLVANIA.

OIL.

Exports of refined, crude, and naphtha from the following ports, from January 1st to August 10th:

	1889. Gals.	1888. Gals.
From Boston	3,049,489	1,961,060
Philadelphia	83,908,885	75,058,398
Baltimore	3,066,195	4,701,461
Perth Amboy	11,648 290	14,49),384
New York	258,626,503	209,840,841
Total exports	360,299,452	306,052,144

The Chief of the Bureau of Statistics reports the total values of the exports of mineral oils from the United States for the month of July, 1889, and during the seven months ending July 31st, 1889, as compared with similar exports during the corresponding periods of the preceding years as follows: July, 1889, $4.600.906; July, 1886, $4 143,042; seven months ending July 31st, 1889, $28.187 483; seven months ending July 31st, 1888, $25,872,554.

VIRGINIA.

Is is reported that Messrs. James C. Hawk and J. P. Woodbouse, members of the Kansas City Mining and Stock Exchange, have just organized a mining company to develop tin deposits in this State, about 80 miles from Washington, D. C. A tract of 10,000 acres has been secured, and a company has been formed, with a capital of $2,000,000. James C. Hawk is president, J. P. Woodhouse vice-president and manager, and W. S. Turner, of Elkton, Pa., treasurer.

WEST VIRGINIA.

GREEN BRIER COUNTY.

GLENMORE IRON COMPANY.—A correspondent writes that this company proposes to spend $2,000 in prospecting.

KANAWHA COUNTY.

It is reported that the Chesapeake & Ohio Railway Company is to build a branch from St. Albans, Kanawha County, West Virginia, up Coal River to its head. The new line will tap a rich bituminous coal and timber region and bring large beds of cannel coal into the market.

WYOMING.

KEYSTONE GOLD MINE.—This mine, in the Douglas Creek district, has been sold by Colonel S. W. Downey, Laramie, to an English syndicate for $75.000. It is reported that a forty-stamp mill and $50,000 worth of machinery will be put up at once. The mine has never been extensively developed owing to a lack of capital. The syndicate has also secured control of four placer mines on Douglas and Beaver creeks.

FOREIGN MINING NEWS.

BRITISH COLUMBIA.

A correspondent sends us the following from the West Kootenai District:

A copy of the ENGINEERING AND MINING JOURNAL came to hand on the summit of Mineral Mountain upon which one of the strongest fissure veins has been discovered since the days of the Comstock in Nevada, carrying high grade silver and gold ore. The principal claims on the lode are the Kootenai, Bonanza, American Flag and Silver King, owned by Messrs. Hall & Co. The lode is located for four miles. The vein runs north and south. There are also several parallel veins which are being developed that are showing every indication of making mines as depth is reached. The formation is of volcanic origin, so pronounced by Professor Dawson, who paid this section a visit two weeks ago. The altitude here at the Hall mine is 6,000 feet above sea level; the distance from the forty-ninth parallel is about sixty miles. Owing to the isolated country in which the claims are located there was not much done up to the present year, but a boat has been placed upon the Kootenai Lake, under the management of Dr. Hendricks, that brings us in close communication with the Northern Pacific Railroad, distance about 200 miles, at Kootenai station, Idaho. There is another district on Kootenai Lake, called Warm Spring. The ore is galena.

ASSESSMENTS.

COMPANY.	No.	When levied.	D'l'nq't in office.	Day of Sale.	Amn't per share.
Alpha Cons. Mill. & Mg., Nev	3	July 15	Aug. 22	Sept. 12	.25
Alpha Cons. Mg., Nev	25	July 15	Aug. 22	Sept. 12	.87½
Argenta, Nev.	19	July 22	Aug. 26	Sept. 16	.10
Baker Divide, Cal.	17	July 8	Aug. 10	Aug. 28	.25
Baltimore, Nev.	5	July 2	Aug. 5	Aug. 24	.25
Castle Chief, Dak.	1	July 3	Aug. 6	Aug. 26	.10
Centre Shot, Dak.	2	June 25	*Ag. 17	*Sept. 4	.002
Chollar, Nev.	27	July 15	Aug. 20	Sept. 10	.50
Crown Point, Nev.	51	July 9	Aug. 12	Sept. 2	.50
East Mount Diablo, Nev.	5	July 18	Aug. 22	Sept. 12	.10
Golden Fleece, Cal.	14	May 21	July 20	Sept. 16	$17.00
Goodman, Nev.	6	June 15	July 20	Aug. 24	.05
Grand Prize, Nev.	21	July 27	Aug. 30	Sept. 20	.30
Hartshorn, Dak.	4	July 27	Aug. 30	Sept. 17	.005
Iron Hill, Dak.	16	July 2	Aug. 5	Aug. 24	.03
Kentuck, Nev.	19	July 30	Sept. 2	Sept. 20	.30
Mexican, Nev.	38	July 9	Aug. 13	Sept. 3	.25
North Belle Isle, Nev	15	June 27	Aug. 1	Aug. 22	.25
Overman, Nev.	60	July 27	Aug. 30	Sept. 20	.25
Platt & Gilson, Cal.	2	July 30	Sept. 10	Sept. 25	$2.00
Ruby Bell, Dak.	9	July 22	Aug. 24	Sept. 10	.002
Savage, Nev.	73	July 19	Aug. 21	Sept. 10	.50
Utah Cons., Nev.	7	July 9	Aug. 13	Aug. 30	.25
U. S. Grant, Dak.	2	July 15	Aug. 19	Sept. 7	.001

DIVIDENDS.

Homestake Mining Company, of Dakota, dividend No. 133, ten cents per share, or $12 500, payable August 26th, by Messrs. Lounsbery & Co., 15 Broad street, New York City.

MEETINGS.

Guadalupona Mining and Milling Company. Room 171, 45 Broadway, New York City, August 22d, at twelve o'clock noon.

Pittsburg Forge and Iron Company, South street near Penn avenue, Pittsburg, Pa., August 20th, at eleven o'clock A. M.

Washington Zinc Company, Lynchburg, Va., August 20th, at five o'clock P. M.

FINANCIAL STATEMENTS.

The following statement shows the financial balances of the principal mining companies having offices in San Francisco on July 1st and on June 1st, 1889. The comparison shows what progress has been made toward a dividend paying position.

CASH ON HAND.

	July 1st.	Aug. 1st.		July 1st.	Aug. 1st.
Alpha	$3,667.40	$822.90	Ind'ence.	$1,357.59	$800 00
Alta	32,968.99	23,800.12	Julia	4,945.05	4,639.85
Andes	3,453.97	22,872.92	Justice	15,225.39	.....
Best & B.	.....	5,911.22	Loco'tive	4,249.06	3,432.00
Belle I.	1,921.79	485.39	Lady W.	22,615.18	22,079.88
Bulwer	13,514.90	6,600.25	Mex'can.	1,533.59	.....
Benton	94,138.02	.....	Mono	17,468.06	11,732.67
Bullion	14,786.19	11,266.69	Ophir	37,261.48	33,986.33
Bodie C.	39,104.61	39,064.00	Ov'man.	3,412.78	309.74
Crocker	.....	6,173.41	Occi'tal	35,641.00	15,579.21
Con. Cal. & Va.	a87,064.52	75,924.15	Peer	.....	1,070.57
Cale'nia.	10,115.14	9,920.64	Peerless.	c2,268.43	6,736.92
C'nfid'ce.	16,236.96	12,236.98	Potosi	34,864.93	.....
Diana	4,440.95	4,388.65	Sco'pion.	1,313.47	506.53
E Sierra Nev.	1,313.23	836.53	Silv.Hill.	16,265.00	11,873.83
Exch'er.	19,441.75	1,689.90	Sil.King.	1,313.47	32,242.86
Gould & Curry.	21,170.19	14,433.25	Stan'ard.	39,873.23	6,464.10
Hale & N	b57,020.51	42,325.99	Sierra N.	8,400.49	16,562.61
Found Treas.	2 167.65	1,611.84	St. Louis	2,312.00	....
Imperial	8,470.00	6,089.55	S'ndic'te.	8,342.55	8,256.01
			Utah C.	9,501.55	242.54
			Un. Con.	16,560.53	.....
			Weldon.	6,413.30	7,319.39

a Cash in bank and unsold bullion on hand valued at $66,514.80, with further shipments to arrive before the close of the fiscal month and operating expenses unpaid.

b With bullion yield of the mine and May expenses not yet reported.

c In cash and $13,828 in unsold bullion.

d Cash in bank and unsold bullion on hand valued at $55,169.96, with further shipments to arrive before the close of the fiscal month, and operating expenses unpaid.

INDEBTEDNESS.

	July 1st.	Aug. 1st.		July 1st.	Aug. 1st.
Belcher	$1,366.88	$11,505.82	Mex'can.	$.....	$268.56
Best & B.	10,535.41	.....	Navajo	869 85	7,013.89
Chal'ge.	11,517.00	13,679.48	Nev Q.	50,751.98	7,160.30
Crown Point.	38,816.62	51,333.93	North C'nw'h.	171.93	3,762.67
C'nw'th.	a43,542.20	b28,049.17	N. B. I.	33,179.57	18,506.74
Con. N. Y.	11,240.50	13,180.73	Peer	538.05	.....
Chollar	30,536.11	38,918.35	Potosi	.....	9,347.42
Crocker	1,131.03	.....	Sierra N.	1,523.46	.....
Del Mo	1,028.06	13,396.62	Savage	41,030.73	30,089.60
Grand P.	30,393.83	55,396 59	Seg. Bel. & M. C.	24,508.79	4,879.83
Holmes	4,545.58	4,810.58			
Kent'ck.	3,792.08	4,240.08			

a With $16,000 in bullion in transit and further shipments to arrive.

b With sufficient bullion on the way to offset this.

MINING STOCKS.

For quotations see pages 152 and 153.

New York.

FRIDAY EVENING, Aug. 16.

On the whole, the week in the mining share market has been of a very ordinary character, with only the usual animation, and prices generally unchanged. As noted in our last issue, however, there is a liberal inquiry for some of the specialties, which apparently indicates that preparations are being made by those on the "inside" for the opening of the fall season.

A movement of some sort is apparently under way in El Cristo. During the week, 4,850 shares changed hands at from $1 05@$1.10. The stock is something of an enigma to many investors, however, and they appear to be afraid to touch it. Others who are on the floor of the Exchange and are constantly watching it have taken a little of it as a pure speculation.

Nothing has been done in the other South American shares, Santiago or San Sebastian, but as both of these mines are now under new superintendents the stockholders appear to be a little more confident than heretofore.

The Colorado stocks in general are quiet. There has been some inquiry for Iron Silver, of which 200 shares were sold at 2 20. Chrysolite is also wanted, but no sales are reported. Little Chief is in request. Five hundred shares were sold this week at 34c. Plutus has been bought to the extent of 1 000 shares at from 78@81c., closing at the former figure. Small Hopes is rather pressed for sale. Yesterday, 500 shares were sold at a dollar per share. Ward Consolidated is still active. Toward the latter part of the week, the supporters of the stock withdrew their bids for some reason or other and the price declined from $1 70 to $1.40 The transactions in the stock aggregated 15.330 shares. Robinson is quoted at 45c. at which price 100 shares were sold. A lot of Aspen. 100 shares, was sold yesterday at $5.50. To-day, $4 50 is bid and $6 is asked The company has passed its usual dividend this month. It has paid nine consecutive dividends, aggregating $360.000. In a circular issued to the stockholders this week it is stated by F. G. Bulkley, the general manager, that

the ore during the past two months has been a little off in grade, and in order to economize as much as possible it has been deemed best to suspend shipments of dry ores, i. e., ores containing less than 10 per cent lead, until the new smelter, which the Boston & Colorado Smelting Company intends to erect near Glenwood Spring, Colo., not far from Aspen, is completed, which will secure to the Aspen company a material saving over the present cost of freight and treatment. In the meantime, according to the circular, development work is to be vigorously prosecuted. It is understood that the company has a sufficient surplus to pay a dividend, but the officers desire to husband their resources to meet any exigencies that may arise.

The Comstock shares are in rather better demand at slightly advanced prices. Con., Cal. & Va. sold at $7.25@$7.63; Crown Point, $2.50@$3.10; Chollar, $2.15; Gould & Curry, $2.00@2.20; Hale & Norcross, $2.90@3.15; Ophir, $4.40@5.00; Savage, $1.80; Sierra Nevada, $2.50@$2.85; Yellow Jacket, $3.20; Best & Belcher, $3.50@$3.80; Mexican, $2.70@$3.40; Occidental, $1.95@$2.05; Union, $2.60@$3.30; Utah, 95@$1.10. It will be noticed that in all cases an advance has been scored at the close.

Sutro Tunnel old stock is still on the list, although no shares were sold this week. Inasmuch as the old company has forfeited its title to all its property, as the members of the Committee on Mining Securities can learn by reference to the mining news columns of the last issue of the ENGINEERING AND MINING JOURNAL, the Exchange should do its duty in the matter at once. The Sutro Trust Certificates were sold during the week at 55@60c.

The Bodies are dull, with the exception of Bodie itself, of which 960 shares were sold during the week at 90c. @$1. No one seems to want Mono with its assessment of 50 cents a share, and the 25 cent assessment and the seemingly interminable lawsuits in which the Bulwer Company is involved seem to keep purchasers away from this stock.

Plymouth is weak at $4@$5, the former being the closing quotation. See our mining news columns for further information.

Standard Consolidated is quiet to-day, 200 shares were sold at $1.05@$1.

The Amador County shares seem to be disappearing from the active list. Astoria, at 20c., is the only one on record this week.

Very little is doing in the Tuscarora shares. Commonwealth sold at $2.50@$3.20, and North Belle Isle at 95c.@$1.10.

The only Dakota stock sold was Iron Hill, which appeared at 55c. There was some demand for Homestake, but no sales resulted. The company announces its 133d dividend payable August 26th of 10 cents per share. This makes $4,431,250 paid to date.

Mutual Mining and Smelting sold at 1·50c., Phœnix of Ark. at 17c., and Rappahannock, which has just held its annual election, at 5c. United Copper is also on record at 1·05c.

There has been considerable buying of Horn Silver at $1.20@$1.30. The company is estimated to have had a cash surplus of $240,000 on August 1st.

Secretary W. W. Lewis is expected back next week.

Joseph Moss, Jr., expects to stay away until September 1st.

J. A. Macpherson has postponed his Western trip.

H. R Lansberg was in town for a few days this week, but is now back in his country retreat.

Boston. Aug. 15.

[From our Special Correspondent.]

There has been a fair amount of activity in copper stocks this week, but the business has been confined to the leading stocks and dividend-paying mines, while the speculative list is almost neglected. Prices have been well maintained, and the strong buying indicates a good degree of confidence in the success of the new combine, and a higher market in the near future. The dealings in Calumet & Hecla have been quite large for this stock (about 500 shares). After a decline to $222 it recovered to the opening price, $224, and was in good demand at this rate.

Boston & Montana has ruled strong, at $35½ to $36¼, with dealings in about 2,200 shares.

Tamarack sold at $102¼, declined to $101 and recovered to $102 on sales of about 500 shares.

Franklin declined ¼ to $9¼, with small dealings.

Osceola also fell off from $11 to $10, but regained ¾ to day by a sale at $10¾.

Quincy sold at $51, and National at $1.

Santa Fe declined to 65c., but rallied to 72½c.; sales about 2,500 shares.

The balance of the list shows no quotations.

In silver stocks Dunkin is the only one showing any activity, and is very strong, with sales at $1.02½.

At a meeting of the copper magnates at Young's Hotel to-day, it is reported that the mining companies have come to an understanding among themselves, and are endeavoring to perfect an agreement with the foreign holders of surplus copper with indications favorable for success.

The effect upon the market this afternoon was quite marked. Calumet & Hecla advanced from $224 to $230 on sale of only 100 shares. Boston & Montana sold up to $36¾, and the balance of the market showed a strong upward tendency.

San Francisco. August 16.

The following quotations were received in New York to-day by telegraph: Alta, $1.40; Best & Belcher, $3.80; Belle Isle, 20c.; Bodie, 95@90c.; Bulwer, 10c.; Con. Cal. & Va., $7.75; Chollar, $2.10; Commonwealth, $2.55; Eureka, $1.50; Gould & Curry, $2.10; Hale & Norcross, $3.10; Mexican, $3.25; Mono, 55@66c.; Navajo, 25c.; N. Belle Isle, 80c.; Ophir, $5.12½; Potosi, $1.65; Savage, $1.80; Sierra Nevada, $2.75; Union, $3.25; Utah, $1.05; Yellow Jacket, $1.80.

Electric Stocks.

BOSTON.—The Thomson-Houston Electric Company has purchased the entire stock and assets of the Vandepoele Electric Manufacturing Company, of Chicago. This company, after the sale of its railway patents to the Thomson-Houston Company, retained an important arc-lighting industry, and also obtained a royalty per car on all cars manufactured by the Thomson-Houston Company. Owing to the increase in the Thomson-Houston business, the royalty was found to be much larger than anticipated, and a favorable arrangement was made for the purchase of the company, carrying with it the royalty above referred to. It is probable that the arc light interests of the Vandepoele Company will be disposed of to the Fort Wayne Electric Company, which has a large business in alternating current incandescent apparatus.

PIPE LINE CERTIFICATES.

Special report by Messrs. WATSON & GIBSON.

Up to Tuesday of this week petroleum has hung steadily around the dollar mark, but on the afternoon of that day, without any premonitions of a decline, it suddenly broke to about 95 cents; since which time it has gradually climbed up close to the dollar mark again. The statistical position has been strengthened by a reduction of 600,000 barrels in the visible supply for the month of July, and at the present rate of consumption the stock of Pennsylvania oil will dwindle down to such small proportions that within a year there will be no sufficient basis for any considerable speculation. If it were not for the existence of the low-priced Ohio oil, which consequently threatens to become a rival of the Pennsylvania article as an illuminant, there could be only one result of the strengthening statistical position of Pennsylvania oil, and that is very high prices. The uncertainty which attends the situation, by reason of the existence of the field alone, accounts for the present relatively low price of petroleum dealt in on the exchanges.

NEW YORK STOCK EXCHANGE.

	Opening.	Highest.	Lowest.	Closing.	Sales.
Aug. 10.....	99⅞	100⅛	99¾	100¼	95,000
12 ..	99¼	100⅛	99⅜	99⅝	63,000
13.....	99⅝	99⅝	97¾	97¾	147,000
14... ..	96	97⅛	95¾	97⅛	165,000
15.....	97⅜	97⅛	96⅞	97	109,000
16.....	96⅞	98⅝	96⅛	98⅝	198,000
Total sales in barrels....					777,000

CONSOLIDATED STOCK AND PETROLEUM EXCHANGE.

	Opening.	Highest.	Lowest.	Closing.	Sales.
Aug. 10.....	100¼	101½	100½	100¼	188,000
12.....	100	100¾	97⅜	100	225,000
13.....	99¼	99¾	98	98	*600,000
14.....	96	97¾	95½	97¼	1,551,000
15.....	97¼	98	97½	97¼	763,000
16.....	97⅝	99⅜	96¼	99⅜	1,058,000
Total sales in barrels.....					4,385,000

* Estimated.

COAL TRADE REVIEW.

NEW YORK, Friday Evening, Aug. 16.

Statistics.

PRODUCTION OF BITUMINOUS COAL for week ended August 10th, and year from January 1st:

EASTERN AND NORTHERN SHIPMENTS.

	1889. Week.	1889. Year.	1888. Year.
Tons of 2,240 lbs.			
Phila. & Erie R.R.....	784	41,846	37,617
Cumberland, Md.....	60,171	1,827,750	2,120,306
Barclay, Pa.....	1,562	69,965	109,001
Broad Top, Pa.....	6,935	191,294	213,412
Clearfield, Pa.....	70,113	1,831,552	2,037,262
Allegheny, Pa.....	15,857	460,187	478,271
Beach Creek, Pa.....	36,396	889,694	927,578
Pocahontas Flat Top.....	22,492	1,029,206	857,618
Kanawha, W. Va.....	24,479	1,045,490	988,021
Total.....	238,789	7,386,924	7,769,086

*Week ending July 31st.

WESTERN SHIPMENTS.

Pittsburg, Pa	12,669	365,978	434,257
Westmoreland, Pa.....	32,820	833,414	948,647
Monongahela, Pa.....	9,812	224,753	238,112
Total.....	55,301	1,424,145	1,621,016
Grand total.....	294,090	8,811,069	9,390,104

PRODUCTION OF ANTHRACITE COAL for week ended August 10th and year from January 1st.

	1889. Week.	1889. Year.	1888. Year.
Tons of 2,240 lbs.			
P. & Read. R.R. Co.....	183,335	3,955,060	3,540,276
Cent. R.R. of N. J.....	121,998	3,426,219	3,129,922
L. V. R.R. Co.....	168,299	4,502,663	3,616,841
D., L. & W. R.R. Co.....	135,765	2,919,740	3,821,610
D. & H. Canal Co.....	83,456	2,320,122	2,549,398
Penna. R.R.....	69,359	1,966,475	2,711,809
Penna. Coal Co.....	34,556	743,111	978,221
Penna. Canal Co.....	15,000	233,862	240,174
N. Y., L. E. & W.....	25,000	693,628	546,824
Total.....	836,768	20,760,880	21,135,075
Decrease.....	....	374,195	....

The above table does not include the amount of coal consumed and sold at the mines, which is about six per cent of the whole production.

Production for corresponding period:

1884.....	17,820,668	1886.....	18,322,645
1885.....	17,242,341	1887.....	20,121,909

PRODUCTION OF COKE on line of Pennsylvania R. R. for week ending August 10th, and year from January 1st, in tons of 2,000 lbs.: Week, 27,976 tons; year, 2,615,032 tons; to corresponding date in 1888, 2,359,214.

Anthracite.

The anthracite trade is still in a very unsatisfactory condition. The demand does not increase at all in proportion to production, and prices are not at all up to standard; in fact most of the coal moving is on old contracts made at March and April prices, and orders for coal at the standard of August or even of June are not numerous. Very good stove coal can easily be purchased at $4, though some of the independent operators get $4.15 instead of $4.40, the regulation price. Other sizes are just as far below the schedule, which is $3.90 for broken; $4.15 for egg and chestnut. Pea coal can be bought at $2@$2.50.

The demand for furnace lump is active owing to the large production of iron and the recent restriction in coke output.

At the meeting of the sales agents this week the condition of the trade and the overproduction were the subjects of much animated discussion. It was admitted on all hands that too much coal is being produced, and yet it seems difficult to bring about a restriction.

It transpired that the Lehigh Valley Company assumes that it has the right of making up the loss in output it sustained by the strike in the Lehigh region at the close of 1887 and the early part of 1888. This claim, if allowed, would open the gate to every other company to make up losses in the past. It was, however, satisfactory to find the company recognize the necessity for some explanation of its overproduction. No definite plan of curtailment was adopted, but it was agreed that the output for August and September shall not exceed 7,000,000 tons, and we understand each company will restrict in its way to bring this about.

No advance was made in prices, but at the meeting to be held on the 28th August the prices will be advanced on paper—to the basis, it is believed, of $4.65 for stove coal, f.o.b. New York shipping ports. It would be more businesslike to devise some way of getting the present schedule, or even the June schedule prices.

Bituminous.

There is little change to record or expect in the soft coal trade at this season, few large orders being in the market, and no surplus supply, so that standard prices are readily obtained by good coals.

The event of the past week was the surrender of the coke companies to their men in giving them 12 per cent advance in wages.

The scale signed by the operators and workmen is as follows: Mining head and room coal, 95 cents per 100 bushels; cagers, $2 per run; drivers in shafts and slopes, $2; in drifts, $1.90; trackmen, shafts and slopes, $2; in drifts, $1.90; trappers, 75 cents; inside laborers, $1,75; drawers, 55 cents per 100 bushels charged; levelers, 10 cents per oven; yard laborers, $1.40; ash carters, $1.50; engineers, $2.25; chargers, 4 cents per oven; tippie men, $1.75. The scale went into effect on the morning of the 9th inst., and operations at a majority of the works in the region were at once resumed. The agreement is to remain in force for six months, and no change will be made in wages should the price of coke advance or decline. At the expiration of that time either party can change the scale, provided 30 days' notice is given.

Buffalo. Aug. 15.

(From our Special Correspondent.)

The writer returned yesterday from attending the Water Ways Convention, held Aug. 6 and 7, at West Superior, Wis. The meeting ended very satisfactorily by the preparation and arrangement for the sending of a memorial to Congress strongly urging the necessity of liberal appropriations being made next session for the harbors of lakes Erie, Huron, Michigan, St. Clair, Superior and Ontario, and for deepening and widening the main channels and courses extending from Duluth to Buffalo; also recommending that after these main channels, etc., are attended to and improved, that then the smaller water-ways leading into said lakes be improved if their commerce demands it, but not otherwise. Other suggestions were made, but the preceding action is the only one in which the coal and iron trades are interested. The attendance was large and influential.

There are no important topics before the anthracite coal dealers and consumers at this port. No change in quotations. The Lake movement for the past fortnight is given below. Freights by lake are firm at unvaried figures. Stocks quite large here, and at the principal receiving and distributing ports on the lakes (from personal knowledge) the piles of fuel are a sight worth seeing.

Bituminous coal continues in good demand without any quotable change in prices. Rem J. mine is the kind mostly in requisition. Dealers say that their profits are scaled down to a very low ebb, but without united action this condition of affairs must of necessity continue to exist. There are complaints of the scarcity of cars, but if such are carefully investigated the result would probably show that the handlers of bituminous fuel are to blame by keeping their stocks on the track instead of placing it on docks or storage.

The shipments of coal from this port by Lake from August 1st to 13th (two weeks) both days inclusive,

aggregated 144,070 net tons, namely: 69,910 to Chicago; 20,440 to Milwaukee; 14,000 to Duluth; 9,530 to Toledo; 7,600 to Superior; 600 to Kenosha; 1,030 to Racine; 40 to Sarnia; 725 to Lake Linden; 240 to Kelly Island; 6,800 to Detroit; 1,300 to Ashland; 400 to Sheboygan; 600 to Gladstone; 2,700 to Green Bay; 650 to Windsor; 775 to Bay City; 50 to Dover; total for the season to date, 1,025,640 net tons.

The rates of freight were 60c. to Chicago; 50c. to Milwaukee, Manitowoc, Lake Linden, Green Bay, Sault Ste. Marie, Portage; 40c. to St. Clair, Duluth, Superior, Ashland, Kelly Island, Sarnia; 30c. to Toledo, Detroit, Windsor and Bay City; also 60c. to Racine and Kenosha, closing firm with good demand. The receipts of coal here by canal for first week in August, 3,074 net tons; the shipments, 130 net tons.

The shipments of coal from this port by canal for the past fortnight were as follows: One load to Ilion at 70c. per net ton; 3 loads to Lockport at 37½c. per gross ton; 1 load to Hudson at $1 per net ton; 1 load to Syracuse at 55c. per gross ton, and 1 load to same place at 55c. per net ton—captains to pay unloading in all cases.

Statistics.—Railroad receipts and shipments at this port are not reported by request. Receipts of coal thus far this season, none. Shipments by lake westward for month of July, 293,330 net tons, as compared with 361,830 tons in 1888, and 205,600 tons in 1887; for season to August 1st, 918,930 net tons, as compared with 1,159,830 tons in 1888, and 836,570 tons in 1887. The receipts of coal by canal for the month of July, 11,008 net tons, as compared with 26,871 tons in 1888, and 6,468 in 1887; the shipments, 1,227 net tons, as compared with 1,735 tons in 1888, and 2,112 tons in 1887. Total receipts by canal this season to August 1st, 30,948 net tons, as compared with 47,692 tons in 1888, and 18,782 tons in 1887; the shipments, 2,943 net tons, as compared with 4,068 tons in 1888, and 3,709 tons in 1887. The aggregate shipments by lake show a decrease of 240,900 net tons, as compared with those of 1888.

The shipments of coal by lake this season to August 1st, were distributed about as follows:

	Net tons.		Net tons.
To Chicago	390,020	Ashland	18,480
Milwaukee	211,580	Houghton	1,350
Duluth	44,630	Muskegon	1,530
Superior	32,790	Marquette	8,580
Racine	20,630	Manitowoc	5,530
Detroit	5,780	Hancock	900
Bay City	3,595	Toledo	8,920
Alpena	600	Marine City	430
Windsor	1,250	Duncan City	50
Sheboygan	5,610	Depere	1,100
Saginaw	10,580	Amherstburg	490
Green Bay	14,100	Pt. Barwell	35
Kenosha	6,990	Pt. Clinton	740
Pt. Huron	3,350	Pt. Rowan	40
Pt. Arthur	3,220	Alzonac	310
Gladstone	21,540	Portage	2,450
Huron, O	240	Oscoda	600
Sault Ste. Marie	1,110	Owen Sound	500
Fort William	1,800	Sheboygan	300
Au Sable	450	Lake Linden	2,650
Victoria Harbor	200	Various ports by vessels clearing from Tonawanda	83,300
Serpent River	40		
Ludington	530		
Pequaming	50		

The rates of freight hence to points named were as follows during the month of July: 50@60c., to Chicago; 50c. to Milwaukee; 40c. to Duluth and Lake Superior ports; 25@30c. to Detroit and Toledo; 50c. to Green Bay, Portage, Houghton and Hancock; 55c. to Racine and 40c. to Saginaw. In 1888 the rate on July 31st hence to Chicago and Milwaukee was 75c., in 1887, 60c. and in 1886, 100c. per net ton.

Boston.

Aug. 15.

[From our Special Correspondent.]

The interest in the anthracite market this week has centered in the meeting of the sales agents at New York Wednesday. There was the liveliest kind of interest in this gathering for two reasons; there is nothing whatever to engage the attention here except the freight question, and it was thought that if the companies decided to advance prices some developments would arise. The announcement that no advance is to be made is well received in local trade circles, but some concern is felt that nothing was done about curtailment. It is supposed that that subject will come up the 28th inst. Every one here seems to think some curtailment absolutely necessary. Jobbers tell me that trade never was so dull. Very little business comparatively was done at June circular prices, and no business worth mentioning has been done at July circular. All coal arriving is on old orders, and there is a pile of it. Retailers all through this State and throughout New England, as I am told by men on the road, are growling about dull coal trade and full coal sheds. Two good reasons are assigned—early purchases last year by consumers were not especially profitable, and, again, the mild winter has caused a very considerable surplus in the aggregate to be carried over, and as there is no inducement of low prices to buy now, there is no trade worth speaking of at retail. Every one here thinks there must be curtailment before present prices even are reached.

Good stove coal is selling at $4, f.o.b. at New York and broken and egg at $3.70. There is plenty of coal on hand of all sizes, except as before noted, of Lykens Valley. Parties who ordered this coal early in the season are troubled to get it, and can only get it by taking also white ash coal which they do not care for particularly. Lykens Valley is being used as the chromo of the coal trade.

In the soft coal line there is no business or new orders of any note. There is some cargo demand but random lots are slow of dispatch, because every one is so behind on contracts. Cargo lots are quoted as high as $4.30 delivered and from that to $4. Any large amount of coal, with liberal time for delivery allowed, could be bought at a very low price, however, considerably less than $2 60 f. o. b. the nominal pool price.

The freight situation continues a hard one. As high as $1.45 has been paid from Baltimore, and $1.40 is a low rate. Philadelphia rates are $1.25@$1.35. At New York vessels are quite plenty, and, as there is no rush of business, freights remain at 90c @$1. It is thought that more vessels will go to the lower ports from New York, and possibly reduce the rates a little at Baltimore. Richmond freights are at the usual winter rate of $1.75.

There is much growling here at the 25 cents allowed for discharging now that freights are so high, as it is claimed that 15 cents would pay handsomely. Nothing is likely to be done about it, however.

Pittsburg.

Aug. 15.

[From our Special Correspondent.]

Coal.—The situation presents scarcely any change. The low water in the Ohio, which is likely to continue for some time, would prevent shipment, provided there was any loaded. In the Fourth pool the miners are all at work at two (2) cents, in the other pools a limited number of miners are working at 2¼@2½ cents.

The nominal rates are:

PRICE OF COAL PER 100 BUSHELS = 7,600 LBS.

First pool	$4.75	Fourth pool	$3.25
Second pool	4.50	Railroad coal	5.00@6.00
Third pool	3.90		

Connellsville Coke.—One strike seems to be over, but not the other. The Hungarians, who cannot talk the English language have been on a grand spree, destroying property and abusing men generally. They have finally been pleased to allow American citizens to go to work. The question what will be the price of coke is hard to solve. Producers are wide apart in their views; coke must be advanced, but how much no one can tell. We hope next week to be able to give something more satisfactory.

FREIGHTS.

The following rates per ton of 2,240 lbs. for coal charters are reported:

From Baltimore to: Boston, Mass., 1.45; Bridgeport, 1.25; Charleston, .75; Fall River, 1.30; Gardner, Me., 1.65@1.70; ‡ New Bedford, 1.25@1.30; Newburyport ...; New Haven, 1.25; New London, 1.25; New York, 1.10; Portland, 1.45; Providence, 1.25@1.30; Richmond, Va., .70; Salem, Mass., 1.45; Savannah, .90@1.00; Williamsburg, N. Y., 1.15.

From Philadelphia to: Alexandria, .85†; Annapolis, 70; Baltimore, .60†; Boston, 1.25*@1.30*; Charleston, .80; Fall River, .80@.90*; Gardner, Me., 1.25* Georgetown, D. C., .85†; Lynn, 1.37½*@1.40*; New Bedford, .80@.90*; New York, .90†; Norfolk, Va., .75@.80; Providence, .80@.90*; Richmond, Va., .90; Salem, Mass., 1.25*@1.30* Washington, .85.†

From New York to: Bath, Me., 1.00*; Boston, Mass., 1.00*; Bridgeport, Conn., .60*; Fall River, .75*; Marblehead, 1.05*; New Bedford, .80*; Newport, .75*; Norwich, .80*; Portland, 1.00*; Portsmouth, N. H., 1.10*; Providence, .80; Quincy Point, 1.00*; Saco, .90*; Sag Harbor, .80; Salem, Mass., 1.00*.

* And discharging. † Alongside. ‡ And towage.

METAL MARKET.

NEW YORK, Friday Evening, August 16, 1889.

Prices of silver per ounce troy.

Aug	Sterling Exch'ge	Lond'n Pence.	N. Y. Cts.	Aug	Sterling Exch'ge.	Lond'n Pence.	N. Y. Cts.
10	4.87½	42 5-16	*	14	4.87½	‡	‖
12	4.87½	42 5-16	*	15	4.87¼	42 5-16	§
13	4.87½	42⅜	†	16	4.87½	42 5-16	¶

* 92¼@92¾. † 92⅜@93. ‡ 42 5-16@42¼. ‖ 92⅛@92¾. §92¼@92⅞. ¶ 92¼@92¾.

The silver market opened strong this week with a good demand for shipment, but suffered a reaction on Wednesday, owing to a smaller demand for Council Bills, consequently applicants received a larger percentage of their tenders. This dullness has been overcome and silver closes this week in fair demand at 14⅞. Payments, $313 885.42 United States Assay Office at New York reports total receipts of silver for the week 81,000 ounces.

Foreign Bank Statements.

The governors of the Bank of England at their weekly meeting made no change in its minimum rate for discount, and it remains at 3 per cent. During the week the bank gained £29,000 sterling bullion, and the proportion of its reserves to its liabilities was raised from 36·18 to 37·17, against an advance from 39·20 to 39·80 per cent. in the same week last year, when its rate of discount was 3 per cent. Thursday the bank gained £11,000 on balance.

Domestic and Foreign Coin.

The following are the latest market quotations fo American and other coin:

	Bid.	Asked.
Trade dollars	$ .72	$ —
Mexican dollars	.73¼	.74
Peruvian soles and Chilian pesos	.73	.73½
English silver	4.86	4.90
Five francs	.94	.95
Victoria sovereigns	4.86	4.89
Twenty francs	3.90	3.95
Twenty marks	4.75	4.80
Spanish doubloons	15.55	15.75
Spanish 25 pesetas	4.80	4.85
Mexican doubloons	15.55	15.70
Mexican 20 pesos	19.50	19.65
Ten guilders	3.96	4.00

Copper.—The most important item of interest as affecting the future condition of the copper market is the progress and development of results from the meetings taking place between the general body of producers. Among these results it seems that the committee appointed at the last meeting to carry out the details, have settled a schedule of selling prices to apply to and regulate sales of the different qualities and brands, the object, of course, being to keep up such relative values by doing away with the competition of individual producers. The prices thus fixed for the time being are said to be as follows: Lake copper, 12c.; Arizona ingot copper, 11¼c.; casting copper, 10½c.; Arizona bars, 10¼c.; but it was thought that the price of casting copper at 10½c., as compared with Lake at 12c., may be found too low to bring the consumption of the different qualities back to a normal raise, and there is consequently a disposition to raise the casting copper price to something like 11c. It is also understood that steps will be taken to reduce production to a point within the consumptive demand and otherwise to regulate production and sales. A meeting is taking place today to ratify and confirm the committee's recommendations and we hope to give fuller details on all these points in our next issue.

Pending the confirmation of all this, the market in general has assumed a waiting attitude, and transactions have been exceedingly limited; but a distinctly stronger tone is evident, and quotations have improved, especially for casting copper, and the following may now be given as present quotations: Lake copper, 12c.; casting copper, 10⅝c.

Reports from Europe continue to be highly favorable, and latest mail advices are to the effect that the market is firm, and all kinds of copper scarce. During the past week the London market for Chili bars and G. M. B.'s has continued firm, and the net result of the week is a gain in quotations of about 10s. to £1 per ton in spot and futures, the latest prices at the end of last week being: Spot, £43 to £43 5s., and futures, £42 to £42 5s., while to-day's closing quotations received by cable are: Spot, £43 10s. to £43 15s.; futures, £42 15s. to £43.

In refined sorts the latest quotations are: English Tough, £46@£46 10s.; Best Selected, £47@£47 10s.; Shoring Sheets, £53@£54, and Yellow Metal, 5d. per lb. Cable advices received to-day report a decrease in the statistics of visible supplies for the first half of August of 100 tons.

The exports of copper from New York during the past week were as follows:

To Liverpool—	Copper Matte.	Lbs	
By S. S. City of Berlin	209 bbls	225,042	$10,000
By S. S. England	761 bags	83,710	5,000
" " "	3,282 bags	337,350	18,051
By S. S. St. Ronans	4,121 bags	412,610	30,000
To Liverpool	Copper.		
By S. S. England	699 pigs	230,428	26,500
To Hamburg—	Copper.		
By S. S. Amalfi	9 pigs	2,258	210
By S. S. Wakefield	60 bbls	75,000	9,000
To Havre—			
By S. S. La Buorgogne	132 pigs	56,000	5,100
" " "	27 casks	33,750	4,050
By S. S. Britagne	90 casks	112,500	13,500
To Rotterdam—			
By S. S. Wakefield	150 casks	25,000	2,900
To Stittin—			
By S. S. Thingvalla	53 casks	66,250	7,950

Tin.—During the greater part of the week the tone of the market was decidedly strong and on Wednesday the highest prices were touched, viz., spot 20 50, but since then rather weaker advices from London have had the usual influence on our prices, and we close to-day spot, 20·25; August, 20·20. September, 20·15.

The London market, after having been up to £91 5s. spot, and £91 15s. three months, has relapsed to-day to £90 to £90 2s. 6d. spot, and £90 10s. to £90 12s. 6d. three months, leaving, however, still a gain of about £1 5s. for the week.

Lead.—While business is quiet and transactions very limited, the undertone is firm and the amount of lead offering is comparatively small. We quote to-day: Spot, 3·90; August, 3 90; September, $3 95.

London advices report the market there firm with quotations about £2 6s. higher than last week, viz., English, £21 17s. 6d.; Spanish, £12 15s.

The Chicago Market.—Messrs. Everett & Post telegraph us to-day as follows: The lack of consumptive demand for spot, and the refusal of all holders to sell futures at present prices, has entirely prevented business in this market. Early in the week there were sellers of spot at 3·75c. Latterly, however, prices are firmer, and we quote the nominal asking price at 3·80c.

The St. Louis Market.—Messrs. John Wahl & Co., telegraph us to-day as follows: A dull and easier feeling has prevailed since we reported a week ago. Market is unsettled; 3·65c. asked for common, 3 67½c. for desilverized.

Antimony continues very firm, with Hallett's at 16½@16¾ and Cookson's at 18½.

The San Emido mine in Ventura County continues to turn out as in years past a small quantity of crude metal the most of which is refined at the Starr & Mathison Works, in San Francisco. A recent find of other deposits in the vicinity of this mine is reported, though not as yet followed by any important ore development. The consumption of antimony on the Pacific coast is small, hardly more than 40 tons per year.

Spelter remains about the same as last reported, with prime Western at 5·10@5·25.

The London market continues firm, the last quotations being, Ordinaries, £21; Specials, £21.5s. American sheet zinc, is 6¼.

Nickel.—The market in its essential features is unchanged. The absorption of foreign supplies at primary points and the consequent shortage of the general supply of both foreign and domestic nickel as compared with the demand sustains prices and renders it difficult to place orders. For Wharton's nickel, as high as 72c. is asked, while the foreign article is quoted nominally at 65c.

Quicksilver.—The market is a little quieter, both here and abroad, and prices are slightly easier. There has been, however, no apparent increase in the supply. The latest London quotation is £9 7s. 6d. In New York $48 per flask is asked. Jobbing quotations are 65@66c. per pound.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, Aug. 16.

Pig Iron.—Consumers are not entering the market very freely, but, on the other hand, very little iron of the standard grades is offering. The market in general retains the prevailing characteristic of a quiet firmness. Some of the new furnaces in the South are offering concessions from current quotations in order to secure trade, but this is scarcely more than usual, and has comparatively little effect on the market as a whole. At present trade is rather evenly balanced; if consumers are obliged to enter the market within the next few weeks to supply their fall requirements prices will probably be stiffened, but if they are able to hold off very long a weakness in the market, and, perhaps, in price, is to be looked for. There is no doubt that the recent improvement was substantial, but unless such an increased consumption is continued for a prolonged period, the supply may become excessive, and this is to be feared for the next month. At present, however, prices are held at former quotations, viz.: Northern brands $17.50@$18 for No. 1 Foundry; $16 @$17 for No. 2 and $15@$15.50 for Gray Forge: Southern standard brands $17@$17.50 for No. 1 Foundry, $15.50@$16.50 for No. 2, and $14.75@$15 for Gray Forge. Only the best Southern brands are commanding top figures. It is probable that some brands of No. 1 Foundry can be obtained at $16.50 from Southern makers, but this can hardly be called a standard quotation. Most of the old-established Southern furnaces are well sold up. The Tennessee C. I. & R. R. Company is understood to have some iron available for immediate delivery, but it is not pressing the market. A number of Southern furnaces have increased their shipments to Western points, endeavoring to take advantage of the healthy feeling there, and this has also contributed to diminish Southern offerings in the New York market.

Scotch Pig.—The Glasgow market is still on the advance and prices nominally have been greatly increased here, but there is naturally very little business at such current quotations. Latest quotations are: Dalmellington, $20.75; Eglinton, $20.25; Langloan, $22; Summerlee, $22.75; Shotts, $22.50; Coltness, $23.

The following are latest cable quotations: Scotch Warrants, 46s. 4d.; Coltness, 60s.; Langloan, 53s.; Summerlee, 59s.; Gartsherrie, 56s. 6d., all at Glasgow; and Glengarnock, 55s. 6d.; Dalmellington, 50s. 3d.; Eglinton, 48s. 3d., all at Ardrossan.

Makers of Ohio "Scotch" brands quote $19 per ton.

Spiegeleisen.—The recently heavy transactions to which we referred last week seem to have absorbed about all the inquiry there is or has been in the market and the demand this week has been quiet and sales small. Whether it is simply a lull or a permanent calm is of course largely conjectural. Quotations are reported at $29.25 for 20 per cent Spiegeleisen. Ferro-manganese, 80 per cent., is also quiet at about $60@$61.

Billets, Slabs and Rods.—As announced last week, foreign wire rods have been advanced to $46 per ton, and in some instances an effort is being made to obtain $47. This is in sympathy with the condition and prices of the foreign market. Inasmuch as American wire rods can be obtained for $41 at mill, or $43@$44 delivered, it is evident that the foreign article is excluded from this market at present. Nail slabs are inquired for liberally at about $29.50 at American mills, and the same quotation holds good for American billets.

Steel Rails.—The midsummer vacation season naturally has the effect of delaying many financial negotiations, and a number of orders for steel rails, including the two inquiries of from eight to ten thousand tons each, mentioned last week, are still pending. There is said to be a prospect, however, that not only these but a number of other inquiries are likely to result in actual business very shortly. The orders that have been booked during the week aggregate only a few thousand tons, and quotations generally are unchanged at about $28 at mill for heavy sections.

Structural Iron and Steel.—The demand continues liberal, and the mills appear to be uniformly engaged for some little time ahead. Prices, however, are stationary. A number of orders have been placed in New York this week. Prices remain as follows:

Prices for structural material continue as follows, at mill: Bridge plate, 2·1c.; angles, 2@2 1c.; tees, 2 5@2·6c.; steel angles, 2·5c.; beams and channels, on wharf, 2·8c.

Steel plates are held as follows: Tank and Ship, 2 25; Shell, 2·4@2·5; Flange, 2 8; Fire-Box, 3·50@4

Iron Plates are quoted as follows on wharf: Common tank, 2 25c.; refined, 2·3@2·4c; shell, 2·4 @2·5c; flange, 3·5@3·7c.; extra flange, 3¾@4c.

Bar Iron.—As stated last week most of the current business is in small lots, which in the aggregate are sufficient to create a very fair volume of business, but large orders are not plentiful. At mill common is quoted at 1·6@1 7c., and refined at 1·75@1·9c. Deliveries from store are quoted as follows: Common, 1·9c. base; Refined, 2c. base; "Ulster," 3@3.1c. base; "Norway," 5c. shapes, and Norway nail rods, 5c.

Merchant Steel.—The demand is fair, prices still low, and the trade as a rule still featureless. A Pittsburg dispatch says that at a meeting to be held September 15th an effort is to be made to revive the old Merchant Steel Association, which disbanded last January. Although the collapse at that time was doubtless precipitated by the withdrawal of Park Bros. & Co., it is believed that other firms sympathized with and secretly endorsed this action, and as this lack of harmony is still apparent, it is scarcely probable that another organization will be successfully effected for the present at least. The action of Park Bros & Co. last January, according to one of that firm's representatives, was because the other members of the association were not honest enough in the matter of schedules, and their opinion on this serious matter does not appear to have undergone a change. Prices are unchanged: Best English tool steel, 15c. net; American tool steel, 7½@10c.; special grades, 13@20c.; crucible machinery steel, 5c.; crucible spring, 3¾c., Bessemer machinery, 2¼@2½c.; Bessemer spring, 2¼@2½c. Open hearth standard grades and spring steel range from 2½ to 3c. Tire steel at 2½c

Pipes and Tubes.—At a meeting of the Wrought-Iron Pipe and Tube Manufacturers' Association, in Philadelphia, this week, no change was made in the schedule of discounts adopted at the Coney Island meeting on July 15th. Representatives of sixteen manufacturers out of the twenty-two members of the Association were present, including the following works: Pittsburg Tube Company, Pennsylvania Tube Company, Duquesne Tube Company, Jas. Hooven Conshohocken Tube Company, Tyler Tube Company, Oil City Tube Company, Riverside Tube Works, National Tube Works Company, American Tube and Iron Company, Morris, Tasker & Co., incorporated, Allison Manufacturing Company, Syracuse Tube Company, Curtis & Co. and Spang, Chalfant & Co. Mr. J. H. Murdock acted as secretary of the meeting. We understand that the discussion over the advisability of an advance was an animated one, but it was at length decided that such action at present would be premature. All the manufacturers reported a lively trade. Rates of discount on wrought-iron pipe remain as follows: Butt-welded, plain and tarred, 50 per cent discount; galvanized, 42½ per cent discount; lap-welded, plain and tarred, 62½ per cent discount; galvanized, 50 per cent discount. A discount of 57½ per cent is allowed on boiler tubes of 2 inches and larger, and 52½ per cent on 1¾ inches and smaller.

Cast-iron pipe remains at $25.50@$30, according to size.

Rail Fastenings.—Apart from considerable competition on fish plates, prices appear to be well upheld. We continue to quote as follows: Spikes, 1·95c.; angle fish-plates, 1·7c.; bolts and sq. nuts, 2·70@2·75c.; bolts and hex. nuts, 2·9@3c.

Old Material.—Neither buyers nor sellers of old rails are plentiful, and their views of values are wide apart. Tees are held at about $23, and doubleheads nominally at $25.50 and upwards. No. 1 wrought scrap is quoted at $20@21, and machinery cast scrap at $15.50.

Louisville. Aug. 10.

(Special market report by Hall Brothers & Co.)

A fair volume of business and a steady market has characterized the week under review. Notwithstanding, the market is reported firm, and the opinion expressed by some, favorable to a still further early improvement, cases have been disclosed where some furnaces were disposed to shade figures on round orders. Should the coke strike continue for some weeks and shut off the furnaces which draw their supply from the Connellsville region, it is thought that considerably advanced figures would be realized by other furnaces. The opinion is expressed, however, by parties in a position to be well informed that the trouble between the coke miners and operators will soon be adjusted and the strike ended. However, this remains to be seen.

The majority of furnaces in the South are well supplied with orders 30 to 60 days ahead, and are hopeful of the near future course of the market.

There is no quotable change in prices.

Hot Blast Foundry Irons.

Southern Coke	No. 1		$14.75@$15.25.
"	"	No. 2	14.00@ 14.50.
"	"	No. 3	13.75@ 14 25.
Mahoning Valley, Lake ore mixture			17.50@ 18.00.
Southern Charcoal	No. 1		16.50@ 17.00.
"	"	No. 2	16.00@ 16.50.
Missouri	"	No. 1	17.50@ 18.00.
"	"	No. 2	17.00@ 17.50.

Forge Irons.

Neutral Coke	13.25@ 13.75.
Cold Short	13.00@ 13.25.
Mottled	12.00@ 12.25.

Car Wheel and Malleable Irons.

Southern (standard brands)	21.50@ 22.00.
" (other brands)	17.50@ 18.00.
Lake Superior	22.00@ 22.50.

Philadelphia. Aug. 16.

[From our Special Correspondent.]

Pig Iron.—Brokers and representatives of pig iron companies uniformly report the iron market very quiet this week. In the sense of placing new contracts at outside figures, this is correct. In the first place, there is very little first-class iron to be had for delivery this side of October. Quite a number of large consumers of good brands made offers some two to three weeks ago for deliveries after October 1st, but their offers were not accepted, and just at present there is very little stir in the market, except for some inferior brands, but which no one will buy unless they believe they are obtaining stock at bottom prices. For instance, 500-ton lots of inferior gray forge have been selling this week at $14.75. No. 1 foundry has been selling as $17, and in two or three cases at a trifle less; but these sales are not indicative of the general tone of the market. In several quarters, buyers pretend to think that within thirty days they will be able to buy iron for less money; but the agents of companies are quite confident that if there is any change on standard irons, it will be in an upward direction. Quotations were given to-day at $15.25 and $15.50 delivered, for forge, and $16 50 for standard No. 2 foundry. Most of the iron going nowadays is poor, as the finer brands are not easily got, and makers are holding in the hopes of getting more money.

Blooms.—The managers of the bloomeries have been meeting with some little success in advancing prices on early deliveries for all kinds of bloomery products. But for large orders to regular customers there is no change. Charcoal blooms are $52 to $54; scrap blooms, $32.50; anthracite, $42 to $43; nail slabs, $29 50; tank slabs, $30.50.

Muck Bars.—One or two concerns that have run out of orders pretty nearly accepted some business this week at a little below rates heretofore ruling, and in consequence some other concerns have also shaded prices. Quotations range from $28.50 to $30.

Merchant Bar.—The market has been strengthened a little more within 6 days by some large car-building purchases and store orders. The fact that some Western iron has been crowding in has not perceptibly weakened the market, and as the mills are full of business for the present, there is not likely to be any shading of prices; on the other hand, city storekeepers are able to prove that there will be an advance.

Nails.—Car load lots sold this week at $1 90; but nails are selling every few days at 10 to 15 cents less, though that fact does not seem to affect prices on standard brands.

Skelp.—Skelp iron sold in small lots at as high as $1.90 for grooved, and at $2.15 to $2.20 for sheared, although large buyers do not pay as much.

Wrought-Iron Pipe.—At this week's meeting no advance in prices was agreed upon, but manufacturers are contemplating this possibility a little later on. Discounts are firm, and mills are full.

Plate and Tank Iron.—Quotations are not shaded, excepting on some business which is coming in by way of completing work arranged for some two or three months ago. Ordinary plates are 2·10 to 2·15c.; universal plates, 2·15c.; shell, 2 40 to 2 50c.; flange, 3·25c., and steel plates 2·25c., with shadings for very desirable orders.

Sheet Iron.—The advance talked of a week or two ago has not been formally announced, but some sheet iron is selling above current rates. It is very hard to get galvanized iron as fast as wanted, but the great rush will be over in about two weeks.

Structural Iron.—Small buyers are paying an advance on building material; large buyers are getting in orders at old quotations. Several specifications for bridge plate were received yesterday.

Steel Rails.—The agitations at the Pennsylvania Steel Company's works have terminated. At all other mills some little business is coming in. Prices are very firm at $28 to $28.50. Inquiries have been made for winter delivery, but scarcely any business of this character has been transacted.

Old Rails.—Large lots of old rails are anxiously inquired for. Prices are advancing. Only small lots are heard of, but a good many negotiations are in progress with outside parties, and these sales, if they take place, will not likely be reported here.

Scrap.—There is a very steady demand for scrap, and $20 is promptly paid for No. 1. Wrought turnings are scarce at $13; cast at $15; borings at $10.

Pittsburg. Aug. 15.

[From our Special Correspondent.]

Raw Iron.—We can report a firm and very active market, prices not only sustained but a further advance demanded, and there are no signs of retrogression. On the contrary, the chances are favorable to better prices in the near future. The demand for Bessemer iron continues liberal. The sales since the 1st of August have been the largest ever made in the same time, and we learn of large sales made by two Valley furnaces to Chicago parties for shipment during the next four months; also, sales to Pittsburg parties that go away up into thousands of tons, the delivery to commence in August, and ending on the first of the new year. Other sales have been consummated that will require a large part of next year to fill. We can report one sale of Bessemer, 9,000 tons, for September and October delivery, together with a number of others which are to be filled as soon as the iron can be turned out from the furnaces. We think it would not be out of place to remark that there is a good-sized boom in the Pittsburg iron market about this time. We made no mistake in the early part of July when we stated that iron was a good investment at prices then current. All options have been with-

drawn on the part of sellers; it is felt that they ought to get better prices to cover increased cost, and as they have plenty of orders to go on with, with every reason to expect a continued good demand during the fall months, they are inclined to take the risk of waiting to see what may turn up In the British iron market the movement commenced about a year ago and the advance since that time (on an enormous output) is from 18 to 20 per cent.

The announcement was made to-day of an advance in Bessemer pig-iron from $15.50@$16 per ton to $16.50@$17 per ton. The advance was made in view of the prospective advance in coke and freight rates. The trade is looking up, and is more encouraging than for months.

The sales that follows will be found interesting reading:

Sales.

Coal and Coke Smelted Lake Ore.

8,000 Tons Bessemer	$ 7.00 cash.
5,000 Tons Bessemer	17.15 cash.
3,000 Tons Bessemer	16.75 cash.
2,000 Tons Bessemer	16.90 cash.
2,000 Tons Bessemer	16.85 cash.
1,500 Tons Bessemer	16.95 cash.
1,200 Tons Bessemer	17.00 cash.
1,000 Tons Bessemer	16.90 cash.
2,000 Tons Gray Forge	14.75 cash.
1,000 Tons Gray Forge	14.75 cash.
1,000 Tons Gray Forge	14.65 cash.
600 Tons No. 1 Foundry	16.50 cash.
500 Tons Gray Forge, all Ore	15.75 cash.
500 Tons Gray Forge	14.65 cash.
200 Tons Gray Forge	15.00 cash.

Coke, Native Ore.

1,000 Tons Gray Forge, cold sheet	14.50 cash
500 Tons Gray Forge	14.50 cash.
300 Tons Gray Forge	14.50 cash.
500 Tons Silvery	16.00 cash.

Charcoal.

200 Tons, an off lot	18.00 cash.
200 Tons No. 2 Foundry	21.50 cash.
100 Tons No. 2 Foundry	21.50 cash.

Muck Bar.

3,000 Tons Neutral	28.10 cash.
1,000 Tons Neutral	28.00 cash.
750 Tons Neutral	28.00 cash.
500 Tons Neutral	27.75 cash.

Steel Wire Rods.

575 Tons American Fires	42.00 cash.

Ferro-Manganese.

109 Tons, 80 per cent	61.00 cash.

Bloom Ends.

500 Tons Bloom Ends	19.25 cash.
400 Tons Bloom Ends	18.50 cash.

Steel Slabs and Billets.

1,000 Tons Billets	28.75 cash.
700 Tons Billets	29.00 cash.
500 Tons Billets	28.85 cash.
500 Tons Nail Slabs	28.00 cash.

Skelp Iron.

1,500 Tons Sheared, per 100 lbs	2.07½ 4 mo.
500 Tons Wide Grooved, per 100 lbs	1.80 4 mo.
500 Tons Narrow Grooved, per 100 lbs	1.70 4 mo.

Old Iron Rails.

1,000 Tons American Ts	24.00 cash.
500 Tons American Ts	24.25 cash.
400 Tons American Ts	24.50 cash.

Prices.

Coke or Bitumi nous Pig—		Muck-Bar	27.50@28.00
Foundry No. 1	$16.25@16.50	Steel Blooms	@28.00
Foundry No. 2	15.25@15.50	Steel Slabs	27.50@28.00
Gray F. No. 3	14.75@15.00	Steel Bl. Ends	18.25@19.00
" No. 4	14.00@14.25	Ferro-Man., 80%	60.50@61.00
White	@14.00	Steel Billets	28.00@28.50
Mottled	@14.00	Old Iron Rails	23.75@24.25
Silvery	@18.50	Old Steel Rails	18.00@19.00
Bessemer	16.90@17.25	No. 1 W. Scrap	19.00@20.00
Low Phos	21.00@21.50	No. 2 W. Scrap	17.50@18.00
Charcoal Pig—		Steel Rails	28.00@28.50
Foundry No. 1	23.50@24.50	" light sec	28.00@31.50
Foundry No. 2	22.00@22.25	Bar Iron, nom	1.70@ 1.80
Cold-Blast	25.00@28.00	Iron Nails	@ 1.90
Warm-Blast	24.00@25.00	Steel Nails	@ 1.90
10 + 12% Speigel	28.75@29.00	Wire Nails	2.15@ 2.20
20% Speigel	31.00		

CHEMICALS AND MINERALS.

NEW YORK, Friday Evening, August 16.

Heavy Chemicals.—The recently noted improvement in this market is sustained mainly for two reasons; first, on account of a more liberal demand for both immediate and future consumption in this market as well as on the other side; and, secondly, because of the possibility of the formation of a new combination of English makers, a consequent curtailment of production and an advance in prices. If this last supposition is verified by subsequent events, or in other words if a combination is formed, an advance in prices is certainly to be apprehended, but as yet the "combination" seems to be far from consummation. The reason that this effort is to be regarded as more important than others of like character that have been made since the opening of the year, is because the general condition of trade is much improved, and the basis upon which a combination is now contemplated, viz., an apportionment of the amount of salt to be decomposed, is more practicable than those heretofore suggested. The one all important essential, harmony, appears to be still lacking, however. No news has yet been received in New York in regard to the action of the manufacturers at the adjourned meeting which was to have been held in Liverpool on Wednesday, the 14th inst., and it is presumed on this side that no decisive agreement has yet been reached. According to latest advices, one and perhaps two large makers were still holding out.

Locally, there has been a fair trade at unchanged prices. Caustic soda, high test, is quoted at $2.20@$2.25 in moderate quantities. Large orders would probably be filled at $2:17½. Sixty per cent is quiet at $2.40.

Bleaching powder is stationary at about $1.75, and the trade is waiting for Liverpool advices.

Soda ash, both carbonated and caustic, 48 per cent, is in improved demand. Carbonated ash, particularly, is in light supply, and only large orders can be placed at less than $1.25, from which figure the quotation for small and medium sized orders ranges up to $1.35. Caustic ash is held at about the same figures.

Sal soda is quoted at the advanced prices named last week. American makers now ask 90c., and English, 95c.

Acids.—The combination of manufacturers is working quite satisfactorily for the present. At the next regular semi-monthly meeting on Wednesday, the 14th inst., the Committee on Permanent Organization is expected to make its report and an effort will then be made to secure a more binding agreement and to perfect the organization. The officers of the meetings are: Wm. H. Nichols, Chairman, and J. L. Morgan, Jr., Secretary and Treasurer. There is some discussion as to the advisability of a further advance in prices. Present schedule prices are conceded to have a fair profit to the manufacturers, and if the managers of this combination intend to profit by the experience of all other similar arrangements, they will refrain from any step liable to invite competition and attack. Moreover, it is probable that the existing agreement in its present immature form would not be sufficient to control all the manufacturers if schedule prices were greatly advanced and an opportunity to secure a large contract by "shading" association prices presented itself.

The formation and management of a combination, even though it be only a local association as is this, requires nice handling, and only good judgment and perfect harmony can insure its success.

The advance in prices does not appear to have materially diminished the volume of trade. A very fair demand is generally reported. For the convenience of our readers we reprint the schedule of prices, bearing date of July 24th, since which time no change has been made

Muriatic acid, 16°, 95c per 100 pounds; 18°, less than 10 cbys, 1½ c. per pound; 18°, 10 cbys, 1¼c.; 20°, less than 10 cbys, 1¾c.; 20°, 10 cbys, 1½c.; 22°, less than 10 cbys, 2c.; 22°, 10 cbys, 1¾c.

Nitric acid, 36°, less than 10 cbys, 4¼c. per pound; 36°, 10 cbys, 4c.; 38°, less than 10 cbys, 4¾c.; 38°, 10 cbys, 4½c.; 40°, less than 10 cbys, 5¼c.; 10 cbys, 5c.; 42°, less than 10 cbys 6¼c.; 42°, 10 cbys, 6c.; 43°, less than 10 cbys, 6¾c.; 43°, 10 cbys, 6½c. Car-load lots, ¼c. per pound less.

Aqua fortis, 36°, less than 10 cbys, 4c. per pound; 36°, 10 cbys, 3¾c.; 38°, less than 10 cbys, 4½c.; 38°, 10 cbys, 4¼c.; 40°, less than 10 cbys, 5¾c.; 40°, 10 cbys, 4¾c.; 42°, less than 10 cbys, 6c.; 42°, 10 cbys, 5¾c.; 43°, less than 10 cbys, 6½c.; 43°, 10 cbys, 6¼c.; car-load lots, ¼c. per pound less.

Sulphuric acid, 60°, 10 cbys and over, 80c. per 100 pounds; 60°, 10 cbys, 90c.; 60°, 5 cbys, 1c. per pound; 60°, less than 5 cbys, 1¼c.

Oil vitriol, 60°, 50 to 100 cbys 1½c. per pound; 66°, 10 to 50 cbys, 1¾c.; 66°, 5 to 10 cbys, 1½c.; 66°, less than 5 cbys, 1¾c.

Tin crystals, 15@16c. per lb, according to quantity These prices are all "f. o. b. in one shipment"

Acetic acid is quoted nominally at 3c. per lb.

Fertilizers.—The demand is not so full as usual at this time, but considerable business is being transacted. Prices are not materially changed, with the exception of blood, which is slightly lower, and the market is quiet in tone, with no decided tendency in either direction.

Ruling prices stand as follows: Azotine, $2.30; dried blood (city), low grade, $2.25@$2.30 per unit; Western high grade, $2.35@$2.37½ per unit for ground material; tankage, high grade, $24@$25 per ton; low grade, $22@23 per ton, as to quality. Fish scrap, $23 per ton, f.o.b. factory. Sulphate of ammonia at $3.05 per cwt. Refuse bone-black, guaranteed 70 per cent phosphate, $19.50@$21 per ton Dissolved bone-black is 87½@92½c. per unit for available phosphoric acid, and acid phosphate 80c. per unit for available phosphoric acid. Steamed bones, unground, $20.00 @$23.50; ground, $25.00@$26 50.

Charleston rock, undried, $5.50 per ton; kiln dried, $6 50@$6.75 per ton, both f.o.b. vessels at the mines. Charleston rock, ground, $11, ex-steamer at New York.

Muriate of Potash. The accumulation of spot supply to which we referred last week is still apparent, and quite a quantity is offered for resale by two firms of fertilizer dealers, who bought on speculation, and have not been able to dispose of as much as they expected. Three gunpowder companies, one in Wilmington, another in Boston, and a third in this city, also overbought, and it is thought that the syndicate's sales agents also have a number of lots in store. None is offered, however, at less than the syndicate's price of $1.80 per 100 pounds, as there has always been a stipulation in the contracts that the buyer shall not resell at less than the official prices.

Double manure salt, basis 48 per cent, is held at $1.20 per 100 pounds on the spot, and $1.15 for futures, for which a liberal inquiry is reported. High grade manure salt, basis 90 per cent potash, is quoted on the spot at $2.32½ per 100 pounds. The syndicate price for futures is $2.50.

Kainit.—A lot of 250 tons was resold this week at current prices. A small lot is offered from store at $10.50 per ton. Official quotations for future arrivals are $9.75 per ton, foreign invoice weight, and $10 actual weight.

Miscellaneous.—The brimstone market is quiet and quotations are unchanged at $19 75 per ton for best unmixed seconds on the spot, and $18.75@$19 for thirds.

Nitrate of soda is dull at $1 85@$1.90 per 100 pounds. The demand is still low and the supply continues in excess of current requirements. A statement which found its way into type this week, to the effect that there is to be an organized effort of some sort to push the sale of nitrate as a fertilizer and endeavoring to connect with this effort the recent visit of Colonel North, the Nitrate King, is so exaggerated as to be scarcely worthy of contradiction. Nitrate of soda has been used for many years as a source of nitrogen in the manufacture of "fertilizers," and during a period of very low prices, as at present, this form of consumption is, of course, liable to be increased by the action of the consumers themselves. Other than this, there is no foundation whatever for any such statement. Nitrate of soda has always been "pushed" in every way possible, and the mention of the name of Col. North is simply a bit of romance, thrown in to enliven an otherwise bare and uninteresting trade report.

NOTES OF THE WEEK.

Midsummer weather is having its usual effect upon trade, and gossip now becomes more plentiful than news. Mr. R. W. Hazard, President of the Solvay Process Company, has returned from Liverpool Rumor has it that in the proposed caustic soda-makers, combination the American producers will obtain formal recognition of some sort. Mr. John D. Wing, the senior partner of the firm of Wing & Evans, has returned from a six weeks' visit in England. During Mr. Wing's sojourn abroad matters chemical engrossed most of his attention, and it is significant that the new chemical-makers' combination was revived while he was there. Mr. John L. Riker is one of the gentlemen recommended by the Chamber of Commerce to serve on the Mayor's World's Fair Committee. Salesman De Peyster, of Messrs. J. L. & D. S. Riker, is beginning to discuss this year's fair of the American Institute, of which he is a trustee. Mr Chas. A. Kirchn, the popular salesman for Mr. A. S. Malcomson, presented himself, as a token of self-appreciation, a handsome diamond stud last week. Mr. Carl Weidinger, of kainit fame, pushes the sale of his specialty with a vigor that deserves special commendation. One of the most successful young business men in the local chemical trade is Mr. Richard Grant, the junior partner of Messrs. H. H. Salmon & Co. Mr. Grant owes his position entirely to his own efforts. Mr. Jacob Hasslacher, president and treasurer of the Roessler & Hasslacher Chemical Company, sailed last Saturday for Europe. He expects to be absent about two months. The recent enlargement of the offices of Heller, Hirsch & Co. was made none too soon, for the firm's business is constantly increasing.

Phosphate rock.—Our special correspondent at Charleston, S. C., reports shipments of crude phosphate rock from that port during July aggregating 18,663 tons, as compared with 17,124 tons in July, 1888. No ground rock was shipped. Of the crude rock, New York took 2,702 tons, Baltimore, 6,249 tons; Philadelphia, 800 tons; Weymouth, 875 tons: Barren Island 767 tons; Newtown Creek, 500 tons: Wilmington, N. C., 345 tons; Mantua Creek, N. J, 576 tons; Wilmington, Del., 1,774 tons, and the remainder went to the So. Ca. and C. & S. Railways.

The borax industry on the Pacific coast, according to California contemporaries, is in a healthy condition, production being active and prices fairly remunerative to the producer, yet not oppressive to the consumer; a condition which, through the observance of a careful policy on the part of the former, may, for the present at least, be maintained. The market, though steady, is not strong, and any overproduction or tendency that way would be likely to precipitate lower prices. For some time past the various companies, by a sort of tacit agreement, have so restricted their output as to avoid glutting the market, a policy that it would be well for them to adhere to, since any wide departure from it would, as past experience shows, lead to ruinously low prices. Exports to the usual countries have for the first part of the year been free, 90 per cent of the whole having been consigned to New York. The California and Nevada companies during the month of June made their usual complement of this salt; the quantity turned out thus far this year having averaged about 500 000 pounds per month six weeks ago. The Harmony Company, after a long suspension, resumed operations at their mines in Death Valley, and also at their refinery on Alameda Point. The affairs of the company being now in good shape and active operations once more under way, they will not be likely to again suffer interruption. Recently a new California borax company has entered the field and begun shipping its product to market. The works are owned by Coon & Trudo, and are situated in Saline Valley, a depression in the Inyo mountains, lying over and to the east of the first ridge of that range. It has an altitude of 500 feet above sea level and is distant 55 miles from Alvord station, on the Carson & Colorado Railroad.

According to the Inyo *Independent*, the new company has 18 crystallizing tanks, each of a capacity of 1,000 gallons. Three tanks are emptied each day, and the yield from these is about two tons of borax. In very warm weather the yield might not quite reach that amount, as the borax does not crystallize so well as in cool weather. The crude material is first boiled, the boiler having a capacity equal to three of the crystallizing tanks, and the solution is then run into them

and allowed to stand six days. The borax accumulates on the sides of the tanks, which are made of zinc, and on plates of the same metal suspended in the liquid. Seven of these plates are used in each tank. The borax is put in sacks direct from the tanks, and is then ready for shipment.

Liverpool. Aug. 7.

(Special report by Messrs. J. P. Brunner & Co.)

Chemicals.—Since our last there is very little change to report in the position of heavy chemicals, prices all round being well maintained, with the exception of bleaching powder, which is again easier. Soda ash continues quiet at late rates, but at the same time there is little pressure to sell, most makers being well filled with orders at the moment. We quote: Caustic ash, 48 per cent, 1/32d to 1 1/32d.; high test, 3/32d. to 1 3/32d. Carb. ash, 48 per cent, 3/32d. to 1 3/32d.; high test, 3/32d. to 1 3/32d.

Soda crystals are still in narrow compass, and £2 10s. to £2 12s. 6d. are nearest values. Caustic soda is somewhat firmer in tone, as there is less offering; 60 per cent continues scarce at £5 15s. to £5 17s. 5d.; 70 per cent inquired for, and a fair number of orders in the market at £8 10s., but holders demand 2s. 6d. to 5s per ton more money; 74 per cent is difficult to find for prompt delivery, and £7 5s. up to £7 10s are nearest spot prices and not easy to find sellers at the lower figure. Seventy-six per cent, £8 to £8 5s. Bleaching powder flat, and, in the absence of business, it is difficult to give a quotation, but £7 is about the nearest quotation for prompt delivery, while possibly a shade less would be accepted if bid outright. Chlorate of potash remains steady at 4¼@5d., while buyers want to get on at a little under the lower figure. Bicarb. soda continues in request at £4 12s. 6d. to £4 15s. per ton, for one cwt. kegs, according to brand and quantity, with usual allowances for larger packages. Sulphate ammonia quiet at £11 17s. 6d. to £12 per ton for good gray 24 per cent f.o.b. Liverpool.

BUILDING MATERIAL MARKET.

NEW YORK, Friday Evening, Aug. 16.

This has been a year of phenomenal weather, and as the weather is, of course, an extremely important factor, both in the production and consumption of building material, its peculiar conditions have more than once upset the calculations of those who, from long experience, should be authorities.

Bricks.—Receipts have been slightly lighter this week than usual, but the diminution of yard supplies has not yet begun to seriously affect the market. The recent heavy rainfall has hurt the quality of such few bricks as were made, and consequently material of poor quality has been and will be shipped to market for some time to come. Doubtless some builders will take advantage of this to lay in a supply of cheap brick, but activity of this kind is not what is desired. The demand this week has been only fair, and prices remain practically unchanged since last week. Haverstraw is quoted at $5.50@$6.25 per M, with few sales at the top figure, and those of the very best quality; Upriver $5@$5.75; Jersey, $ 50@$5.25, and Pale $3.25@$3.75.

Lime.—Under the careful management of the Manufacturers' Association the market for the Rockland article is kept in good condition. No excessive supply of other grades is to be noticed, and prices are unaltered.

Plaster.—One of the largest trade strikes which has taken place in this city for months began and ended yesterday. At a meeting on Tuesday the Operative Plasterers' Society decided to make a demand for $4.50 for a day's work in place of $4, the old rate. The question was put to the bosses on Wednesday whether they would pay the advance, but they gave no answer, and 1,500 out of 2,200 plasterers at work went on strike at noon yesterday to enforce the demand. The strikers met at Brevoort Hall, Third avenue and Fifty-third street, and reports showed that out of 22 builders, eight at once granted the demands of their men, while the remaining 14 decided to fight; but at a meeting of the bosses last night it was resolved to grant the advance, as a great amount of work is under way, and word was sent to the executive board of the plasterers for the men to return to work to-day.

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IMPORTS AND EXPORTS OF METALS AT NEW YORK AUGUST 3, TO AUGUST 10 1889, AND FROM JANUARY 1.

IMPORTS.

Spelter.	Week. Tons.	Year. Tons.
Amer. Metal Co	56	142
Downing & Co., R.F		28
Hendricks Bros		28
Lamarche's Sons, H.		6
Lewisohn Bros.	28	84
Naylor & Co.	24	369
Total	108	757
Corres. date, 1888	69	1,242
Nickel.	Lbs.	Lbs.
McCoy & Sanders		11,240
Total		11,240
Corres. date, 1888		138,166
Antimony.	Casks.	Casks.
Total		1,358
Corres. date, 1888	225	1,786
Pig Lead.	Lbs.	Lbs.
Caswell, E. A		10
Erie Dispatch		9
Foley, E.		43
Henderson Bros.		11
Hendricks Bros	11	78
Total	11	151
Corres. date, 1888	111	257
Tin.	Tons.	Tons.
Amer. Metal Co		706
Bidwell & French		725
Bruce & Cook		14
Bursley, Ira		50
Carter, Hawley & Co		46
Cohn & Co., A		12
Crooks & Co		300
Daval & Son, John		21
Hendricks Bros		164
Knauth, N. & Kuhne		10
Lehmarer, S. & Co		107
Mendel & Tompkins		1
Muller, Schall & Co		935
Naumann, F		1
Naylor & Co		1,335
Phelps, Dodge & Co		2,250
Pope, J. E., Jr		225
Schmarer & Co		11
Schreider, J. & Co		10
Thomsen, A. A		151
Thomsen, D		166
Townsend, J. R		135
Wheeler & Co		1
Total		7,437
Corres. date, 1888	383	8,265
Tin Plates.	Boxes.	Boxes.
American Metal Co		477
American Metre Co		433
Brown & Co., V. H		350
Bruce & Cook	136	56,451
Byrne & Co., J		8,392
Central Stamp Co	1,042	62,072
Coddington & Co	1,082	101,922
Cohen, S. M		272
Cohn & Co., A		18,879
Con. Fruit Jar Co		981
Cort & Co., N. L	844	100,834
Cormier, F. & S		4,044
Crooks & Co	834	60,005
De Milt & Co.		11,124
Dickerson, V. D	9,672	250,783
Downing & Co		306
Erie Despatch		244
Fenton, D. U	104	1,799
Foley, E		74
G. L. N		75
Holder & Herrick		271
Iron Clad M. Co		283
Ismay, J. B		500
Lalance & G		6,207
Lazard Bros		2,356
Lombard, Ayres		3,000
Merchant & Co	1,428	14,738
Mersick & Co		7,280
Morewood & Co		7,232
Mulholland & H		767
Newell Bros		294
Payne & Son		208
Phelps, Dodge & Co	9,011	410,891
Pratt Mfg. Co	2,302	153,781
Wolff & Reesing		4,923
Sanders Bros		479
Shepherd & Co		19,415
Somers Bros		1,356
Taylor Co., N. & G	79	1,126
Thomsen, A. A	542	125,308
Warren & Co., J. M		4,134
Wheeler & Co		14,209
Whittemore & Co	1,634	26,417
Wolff & Reesing	385	5,933
Total	29,145	1,569,120
Corres. date, 1888	49,180	1,167,247
Pig Iron.	Tons.	Tons.
Baldwin, A		401
Bartlett, N. S		1,100
Crocker Bros	100	5,200
Crooks & Co		500
Drummond, McC. & Co	100	1,900
Henderson Bros	300	1,016
Godwin & Son, A. G		390
Irvin & Co., R		300
Martin, W. T	50	200
Naylor & Co		50
Page, Newall & Co		75
Perry & Ryer		125
Pierson & Co		500
Pope, Sons & Co		250
Sheldon & Co., G. W		200
Stetson & Co		4,200
Topper & Beattie		100
Walbaum & Co		275
Whittemore & Co., H		50
Williamson & Co	200	2,600
Total	750	20,635
Corres. date, 1888		28,651
Steel Sheets, Billets, Forging, etc.	Tons.	Tons.
Abbott & Co		2,450
Ames, W. T		253
Austin & Co		30
Baldwin Bros. & Co		15
Belcher, H. W		95
Boker, C. F		131
Carey & Moen		118
Carter, G. F		200
Coddington & Co		21
Crenshaw, Hugh		27
Crooks & Co		292
Cortis, R. J		408
Curran, J		5
Dana & Co		13,035
Downing & Co		171
Erie Despatch		40
Galpin, S. H		497
Hugill, Chas		95
Ismay, J. B		174
Lalance, & G		106
Lazard Bros		6
Leng's Sons, J. S		114
Lublin & Estey		7
Lundberg, G		51
Mersick & Co		5
Milne & Co	55	2,300
Montgomery & Co		5
Naylor & Co		2,710
Newton & S		35
Oelrich & Co		339
Pierson & Co		323
Pilditch, F. S		75
Power, C. W		36
Prosser, Thos		496
Roebling's Sons		251
Schulze & R		13
Standard Oil Co		222
Stetson & Co		11
Strouse & Co., M		25
Temple & L		15
Wagner, W. F		373
Wallace & Co		5
Wetheral Bros		2
Whitney & W		30
Wiel Elie		44
Wiell & Co		7
Williams & W		95
Wolff, R. H		347
Total	55	26,168
Corres. date, 1888		17,281
Bar Iron.	Tons.	Tons.
Abbott & Co., J		1,097
Bacon & Co		330
Dana & Co		25
Downing & Co	2	529
Froment, F		10
Fuller, Dana & Fitz		23
Holt & Co., H. N		149
Jacobus, E. G	5	22
Lang & Co		3
Lilienberg, N		8
Lundberg, G		300
Lundell, C. G		160
Merchants' Dispatch		15
Milne & Co	104	1,546
Muller, Schall & Co		575
Naylor & Co		253
Ogden & W		7
Page, N. & Co		1,287
Plenty, John		2
Froment, F		440
Wells, F., & Co		15
Total	111	6,648
Corres. date, 1888	1,793	4,086
Steel and Iron Rods.	Tons.	Tons.
Abbott & Co., J	164	3,589
American S. Co		803
Bacon & Co		350
Baker, H		3
Belcher, H. W		14
Boker, H		35
Bruce & Cook		20
Carey & Moen	61	808
Cooper, H. & Co		40
Crabb & Co., W		17
Dana & Co	145	2,060
Downing & Co		690
Durbrow, Walter		472
Eckstein, G. C		98
Fuller, D. & T		15
Galpin, S. H	130	1,187
Hazard Mfg. Co		20
Heyn, A		2,034
Hugill, Chas		27
Jansen, J. A	150	150
Lee & Co., James	75	105
Lilienberg, N		56
Lundberg, G		760
Lundell, C. G		246
Milne & Co	42	1,031
Montgomery & Co	45	105
Muller, Schall & C		400
Naylor & Co		9,726
Nichols, B. J		10
Oelrichs & Co		50
Page, N. & Co		574
Pilditch, F. S		15
Plenty, J		1
Pratt Mfg. Co		30
Roebling's Son	100	1,582
Wagner, W. F		8
Wetherall Bros		2
Wheeler & Co., E. S		120
Whitney & Co		580
Williams & W		5
Wolf & Co	24	3,848
Wright P. & Co		3
Total	936	32,512
Corres. date, 1888	658	32,419
Old Rails.	Tons.	Tons.
Baldwin Bros. & Co		240
Bowring & A		57
Crossman & Bro		1,598
Henderson Bros		150
Neumark & Gross		6,115
Perkins, C. L		433
Perry & Ryer		177
Sheldon & Co		203
Ward & Co., J. E		21
Wolff, H		141
Total		9,105
Corres. date, 1888		5,541
Scrap Iron.	Tons.	Tons.
Bowring, A		25
Burgass & Co		162
Downing & Co		321
Funch, E. & Co		397
Henry, A. F		50
Neumark & Gross		500
Spaulding & Jo		172
Ward & Co., J. E		559
Watjen, F. & Co		152
Total		2,338
Corres. date, 1888		1,398
Charcoal Iron.	Tons.	Tons
Bacon & Co		97
Downing & Co		671
Lilienberg N		6
Milne & Co		94
Muller, S. & Co		135
Naylor & Co		45
Page, N. & Co		754
Total		1,802
Corres. date, 1888		404
Sheet Zinc.	Lbs.	Lbs.
Crooks & Co		441,814
Lemarch's S's, H		1,554
Total		443,368
Spiegeleisen.	Tons.	Tons.
Abbott & Co		2,676
Blakely & McLellan		3,100
Crocker Bros	534	10,354
Dana & Co		6,226
Farris & Co		325
Geisenheimer & Co		110
Jansen, J. A		9,397
Naylor & Co		10,797
Perkins, C. L		2,601
Walbaum Bros		675
Total	534	45,575
Corres. date, 1888		30,621
Sheet Iron.	Tons.	Tons.
Coddington & Co		456
Downing & Co		16
Kelly, Hugh		5
Total		477
Corres. date, 1888	25	1,230
Iron Ore.	Tons.	Tons.
DeFlores, R	200	200
Earnshaw, A		4,971
Lawrence, Johnson & Co		480
Total	200	5,651
Corres. date, 1888	1,022	19,817

EXPORTS.

Copper.	Pounds.	Pounds.
Abbott & Co		463,109
Amer. Metal Co		799,527
Am. & Patterson		278,756
Barber & Co	100,000	100,000
Belmont & Co		987,500
Friedenstein, Jas	2,258	2,258
Fyfe, Robert		100,000
Hurst, F. W. J		113,000
Naylor & Co		1,234,500
Orford, C. & S Co		112,013
Piper, D. & Co		3,898
Raftery, T. E		250,000
Seaman, Sam'l H		234,615
Total	102,258	4,268,876
Corres. date, 1888	243,633	23,424,337
Copper Matte.		
Abbott & Co		427,613
Amer. Metal Co	125,042	3,674,381
Am. & Patterson		640,600
Clark, W. A		879,619
Cortis, R. J		240,600
Henriott, F		5,293,250
Nichols & Co., G. H		224,879
Oelricks & Co	40,800	40,800
Seaman, Sam'l H		19,400
Wil'ms, Terhune		5,900,405
Total	165,842	17,230,957
Corres. date, 1888	603,937	37,101,505
Copper Ore.		
Burgass & Co		32,460
R. J. Cortis		34,100
Total		66,560
Corres. date, 1888		181,309

DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par	Assessments. Total levied.	Assessments. Date and amount of last			Dividends. Total paid.	Dividends. Date and amount of last.		
1	Adams, s. L.	Colo.	$1,500,000	150,000	$10	*	....	....	....	$555,000	Jan.	1887	.15
2	Alice, s. C	Mont	10,000,000	400,000	25	*	....	....	....	775,000	Dec.	1888	.06⅓
3	Alma Cons., G	Idah.	300,000	30,000	10	*	....	....	....	45,000	Dec.	1888	.50
4	Alturas, G	Idah.	1,500,000	300,000	5	....	....	....	....	262,500	Jan.	1888	37½
5	Amy & Silversmith, s.	Mon.	....	341,419	....	....	....	....	....	247,530	Aug.	1887	12½
6	Atlantic, C	Mich	1,000,000	40,000	25	$280,000	Apl.	1875	$1.00	520,000	Feb.	1889	2.00
7	Argents, s	Nev.	10,000,000	100,000	100	33b,000	July	1889	.10	40,000	Feb.	1880	.20
8	Aspen Mg. & S., s. L.	Colo.	2,000,000	200,000	10	*	....	....	....	380,000	July	1889	.20
9	Aurora, I	Mich	2,000,000	100,000	20	....	....	....	....	155,000	Oct.	1887	1.87½
10	Bassick, G. s.	Colo.	10,000,000	100,000	100	*	....	....	....	400,000	Mar.	1883	1.00
11	Belle Isle, s.	Nev..	10,000,000	100,000	100	155,000	Apl.	1889	.10	300,00	Se..	....	.95
12	Belcher, G. s.	Nev.	10,400,000	104,000	100	2,822,000	Feb.	1889	.90	15,397,200	Apl	1876	1.00
13	Bellevue Idaho, s. L.	Idah.	1,250,000	125,000	10	88,750	May	1889	.10	187,50	Jan	1887	10
14	Bodie Con., G. s.	Cal	10,000,000	100,000	100	550,000	Mar.	1889	.50	1,295,00	Apl.	1885	50
15	Boston & Mont., G	Mon.	2,500,000	250,000	10	*	....	....	....	620,00	Jun.	1886	.10
16	Boston & Mont., C.s.	Mon	2,500,000	100,000	25	*	....	....	....	800,000	July	1889	1.00
17	Breece, s	Colo	2,000,000	200,000	25	*	....	....	....	2,00	Feb.	1886	.01
18	Brooklyn Lead, L. s	Utah	500,000	50,000	10	*	....	....	....	127,00	July	1887	.05
19	Bulwer, G	Cal.	10,000,000	100,000	100	105 000	Apr.	1889	.15	175 0	Jan.	1884	10
20	Bunker Hill & Sull	Idah.	3,000,000	300,000	10	*	....	....	....	150,00	Oct.	1888	.06⅔
21	Caledonia, G	Dak	10,000,00	100,000	100	505,000	May	1886	.15	120,000	Aug.	1889	.08
22	Calumet & Hecla, C	Mich	2,500,000	100,000	25	1,200,000	....	....	....	32,350,000	July	1889	5.00
23	Carbonate Hill s. L.	Colo.	1,500,000	200,000	10	*	....	....	....	80,00	Apl.	1884	05
24	Carlisle, G	N. M.	1,000,000	200,000	5	....	....	....	....	175,000	Dec.	1888	.12½
25	Castle Creek, G	Idah.	100,000	100,000	1	....	....	....	....	51,00	Oct.,	1888	.03
26	Catalpa, s. L	Cal.	3,000,000	300,000	10	*	....	....	....	270,000	May.	1884	.10
27	Central, C	Mich	500,000	20,000	25	100,000	Sept	1861	.06	1,930,000	Feb.	1889	2.00
28	Chrysolite, s. L	Colo.	10,000,000	200,000	50	*	....	....	....	1,650,000	Dec.	1884	.25
29	Colorado Central, s. l	Colo.	2,750,000	275,000	10	*	....	....	....	406,000	July	1889	.05
30	Confidence, s. L	Nev.,	....	24,000	....	287,440	Apl.	1887	.50	199,680	Apl	1889	1.00
31	Cons. Cal. & Va., G s	Nev.	21,600,000	216,000	100	108,000	Jan.	1885	.20	3,08 ,800	July	1889	.50
32	Contention, s	Ariz.	12,500,000	250,000	50	....	....	....	....	14,587,000	Dec.	1884	.25
33	Cop. Queen Cons, C.	Ariz.	1,400 000	140,000	10	....	....	....	....	140,000	Oct	1888	.50
34	Crescent, s. L. G	Utah	15,000,000	600,000	25	*	....	....	....	228,000	Oct.	1888	.03
35	Crown Point, G. s	Nev..	10,000,000	100,000	100	2,875,000	July	1880	.50	11,588 000	Jan.	1875	2.00
36	Daly, s. L	Utah	3,000,000	150,000	20	*	....	....	....	1,87,50	Jun.	1889	.25
37	Deer Creek, s	Idah.	1 000,000	200,000	5	*	....	....	....	20,000	Jun.	1889	.05
38	Deadwood-Terra., s.	Dak.	5,000,000	200,000	25	*	....	....	....	1,000,000	Nov.	1887	.10
39	Derbec B. Grav., G. s.	Cal.	10,000,000	100,000	100	90,000	Dec.	1881	.10	180,000	May	1887	.10
40	Dunkin, s. L	Colo.	5,000,000	200 000	25	*	....	....	....	380,000	July	1889	05
41	Dunstone, G. s. L	Mont	1,000,000	200,000	5	*	....	....	....	6,000	Nov.	1888	.03
42	Eclipse	Colo.	100,000	100,000	1	....	....	....	....	20,000	Nov.	1887	.10
43	Elkhorn, G. s	Mont	1,000,000	100,000	10	50,000	July	1883	.50	170,000	July	1887	.10
44	Empire L., G	Mont	500,000	100,000	5	....	....	....	....	100,000	Oct.	1887	37½
45	Eureka Con., G. s. L	Nev..	5,000,000	50,000	100	550,000	Jun.	1889	.50	4,995,000	July	1888	.25
46	Evening Star, s. L	Colo.	500,000	50,000	10	*	....	....	....	1,425,000	Apl	1889	.25
47	Excelsior, G	Cal.	10,000,000	100,000	100	580,000	Sept	1885	1.00	875,000	Oct.	1886	.25
48	Father de Smet, G	Dak.	10,000,000	100 000	100	200,000	Nov	1878	1.00	1,125,000	Dec	1886	.20
49	Franklin, C	Mich	1,000,000	40,000	25	220,000	Jun.	1871	....	800,00	Dec.	1888	2.00
50	Freeland, G. s.	Colo.	5,000,000	200,000	25	*	....	....	....	300,000	July	1886	10
51	Fresno Enterprise, G	Cal.	5,000,000	100,000	50	....	Mch	1883	.10	110,00	July	1882	.10
52	Garfield Lt., G s	Nev.	500,000	100,000	5	....	....	....	....	85,000	Apl.	1888	12½
53	Goiconda, G. s	Idah.	1,000,000	100,000	10	*	....	....	....	120,000	May	1888	.60
54	Gould & Curry, G. s.	Nev.	10,800,000	108,000	100	4,402,200	May	1889	.30	928,800	Oct.	1870	10.00
55	Grand Central, s	Ariz.	1,000,000	100,000	10	*	....	....	....	625,00	Dec	1882	.25
56	Grand Prize, s	Nev.	10,000,000	100,000	100	655,000	July	1889	.20	497 0	Mar.	1884	.25
57	Granite, s	Idah.	500,000	500,000	1	*	....	....	....	10,000	Jun.	1888	.02
58	Granite Mountain, s.	Mont	10,000,000	400,000	25	....	....	....	....	7,900,000	Aug.	1889	.75
59	Green Mountain, G	Cal.	1,250,000	125,000	10	*	....	....	....	312,00	Nov.	1881	.07½
60	Hale & Norcross, G. s	Nev.	11,200,000	112,000	100	5,086,000	July	1887	.50	1,162,000	July	1888	.50
61	Hecla Con., s. G. L. C.	Mont	1,500,000	30,000	50	....	....	....	....	1,332,500	May	1889	.50
62	Hel'a Mg & Red, G. s. L.	Mont	3,315,000	663,000	5	*	....	....	....	197,97	July	1886	.06
63	Holmes, s	Nev.	10,000,000	100,000	100	300,000	Sept	1885	.10	75,000	Apr.	1886	.25
64	Holyoke, G	Idah.	200,000	200,000	1	*	....	....	....	27,00	Feb.	1885	.10
65	Homestake, G	Dak.	12,500,000	125,000	100	200,000	July	1878	1.00	4,431,250	Aug.	1889	.10
66	Honorine, s. L	Utah	500,000	250,000	2	37,500	Apl.	1889	.05	125.00	Sept	1887	.05
67	Hope, s	Mont	1,000,00	100,000	10	*	....	....	....	233,252	Apl.	1888	.25
68	Horn-Silver, s. L	Utah	10,000,00	400,000	25	*	....	....	....	4,000,000	Nov.	1884	.50
69	Hubert, G	Colo.	500,000	50,000	10	*	....	....	....	230 00	Oct	1888	.11
70	Idaho, G	Cal.	310,000	3,100	100	....	....	....	....	5,166,150	Jun	1889	5.00
71	Ideal, s. L	Colo.	1,500,000	50,000	10	*	....	....	....	15,000	Oct.	1886	.05
72	Illinois, s	N M.	100,000	100,000	1	*	....	....	....	45,000	Apl	1889	.20
73	Independence, s	Nev..	10,000,000	100,000	100	340,000	Oct.	1886	.20	225,000	Sept	1879	.25
74	Iron Hill, s	Dak.	2,500,000	250,000	10	134,000	July	1889	.03	156,25	Nov	1887	.07½
75	Iron-Silver, s. L	Colo.	10,000,000	500,000	20	*	....	....	....	2,300,000	Apl.	1889	.20
76	Jackson, G. s	Nev	5,000,000	50,000	100	237,500	Nov	1880	.20	55.000	Jun	1889	10
77	Jay Gould	Mont	2,000,000	4 .00	5	*	....	....	....	385,000	Apl	1889	.04
78	Jocuistita, s	Mex.	2,500,000	250,000	10	....	....	....	....	1,200,000	Feb.	1886	.50
79	Jumbo, G	Colo.	2,000,000	200,000	10	*	....	....	....	35.000	Oct.	1887	.02½
80	Kentuck	Nev.	3,000,000	30,000	100	360,000	July	1889	.30	1,350,000	Dec.	1886	.10
81	La Plata, s. L	Colo	10,000,000	400,000	10	*	....	....	....	610,000	Sept	1882	.30
82	Leadville Cons., s. L.	Colo.	4,000,000	400,000	10	*	....	....	....	423,000	Apl.	1887	.05
83	Lexington, G. s	Mont	4,000,000	40,000	100	*	....	....	....	565,000	Jan.	1885	2.00
84	Little Chief, s. L	Colo.	10,000,000	200,000	50	*	....	....	....	800,00	July	1888	.10
85	Little Pittsburg, s. L	Colo.	20,000,000	200,000	100	*	....	....	....	1,050,000	Mch.	1880	.50
86	Marion Bullion, G	N.C.	500,000	....	....	....	....	....	....	15,000	Jan.	1886	....
87	Martin White, s	Nev.	10,000,000	100,000	100	1,175,000	Jan.	1889	25	140,000	Dec.	1886	.25
88	Mary Murphy, G. s	Colo.	350,000	3,500	100	*	....	....	....	175,000	May	1888	5.00
89	Minnesota, C	Mich	1,000,000	40,000	25	420,000	Apl.	1886	1 00	1,826,000	Mar.	1876	....
90	Mono, G	Cal.	5,000,000	50,000	100	65,350	Mar.	1889	.25	12.500	Mar	1886	.25
91	Montana, Lt, G. s.	Mont	3,300,000	660,000	5	*	....	....	....	2,272,785	July	1889	.06¾
92	Morning Star, s. L	Colo.	1,000,000	100,000	10	*	....	....	....	775,000	Mar.	1889	.25
93	Moulton, G	Mont	2,000,000	400,000	5	*	....	....	....	280,000	Dec.	1887	.07½
94	Mount Pleasant, G	Cal.	150,000	150,000	1	*	....	....	....	150,000	Feb	1887	.30
95	Mt. Diablo, s	Nev..	5,000,000	50,000	100	137,500	Jun.	1880	2.00	140,000	Jan.	1889	.40
96	Napa, G	Cal..	700,000	100,000	7	*	....	....	....	310,000	July	1889	.10
97	Navajo, G. s	Nev..	10,000,000	100,000	100	485,000	Apl.	1888	.30	365,000	Apl.	1889	.10
98	New Guston, s	Colo.	500,000	100,000	5	*	....	....	....	150,00	July	1889	.50
99	N. Hoover Hill, s. L.	N. C.	300,000	150,000	2	*	....	....	....	30,000	Dec.	1885	.06⅔
100	Northern Belle, s	Nev..	5,000,000	100,000	100	425,000	Jan.	1884	3.50	2,400,000	Apl	1883	50
101	North Belle Isle, s	Nev..	10,000,000	100,000	100	330,000	Jan	1889	.30	230.000	May	1888	.50
102	North Star, G	Cal..	1,000,000	100,000	10	*	....	....	....	150,000	Dec	1888	.50
103	Ontario, s. L	Utah	15,000,000	150,000	100	*	....	....	....	10,175,000	Jun.	1889	.50
104	Ophir, G. s	Nev..	10,000,000	100,000	100	4,159,440	May	1889	.50	1,995,800	July	1882	1.00
105	Original, s. C	Mont	1,500,000	60,000	25	*	....	....	....	123.000	July	1888	.05
106	Osceola, C. s	Mich	1,250,000	50,000	25	480,000	Apl.	1876	1.00	1,222,500	Mar.	1889	1 00
107	Oxford, G	N. S	125.000	125,000	1	*	....	....	....	74,500	Sept	1888	.02
108	Paradise Valley, G. s	Nev.	10,000,000	100,000	100	57,000	Apl.	1888	.15	150,000	Apl	1887	.10
109	Parrot, C	Mont	1,800,000	180,000	10	*	....	....	....	672,000	May	1889	.10
110	Peacock, s. G. C.	N.M.	2,000,000	200,000	10	*	....	....	....	60,000	Nov.	1886	....
111	Plumas Eureka, s. L.	Cal..	1,4 .000	140,625	10	*	....	....	....	2,495,250	Apl	1889	.50
112	Plutus, G. s. C. L.	Colo.	2,000,000	200,000	10	*	....	....	....	20,000	Feb.	1886	.10
113	Plymouth Con., G	Cal.	5,000,000	100,000	50	*	....	....	....	2,280,000	Feb	1888	.40
114	Quicksilver, pref., Q	Cal..	4,300,000	43,000	100	....	....	....	....	1,599,593	May	1889	1.50
115	" com., Q	Cal..	5,700,000	57,000	100	....	....	....	....	643,867	July	1882	.40
116	Quincy, C	Mich	1,000,000	40,000	25	200,000	Dec.	1882	....	5,250,000	Aug	1889	2.00
117	Richmond, s. L	Nev..	1,350,000	135,000	10	*	....	....	....	4,312,387	Feb	1887	1.25
118	Ridge, C	Mich.	500,000	20,000	25	219,939	Mar	1886	.50	92,785	Feb	1880	.50
119	Robinson Con., s. L.	Colo.	10,000,000	200,000	50	*	....	....	....	585,00	Mar.	1886	.05
120	Robert E. Lee, s. L	Colo	10,000,00	500,000	20	*	....	....	....	100,000	Dec	1882	.50
121	Savage, s	Nev..	11,200,000	112,000	100	6,542,000	July	1889	.50	4,400,000	July	1869	3.00
122	Shoshone, G	Idah.	150,000	150,000	1	*	....	....	....	7,500	Apl.	1883	.01
123	Sierra Buttes, G	Cal..	2,325,000	125,529	10	*	....	....	....	1,562,40	Apl.	1888	.12½
124	Sierra Nevada, G. s.	Nev..	10,000,000	100,000	100	6,200,000	Jun.	1889	.25	103,000	Jan.	1871	1.00
125	Sierra Nevada, s. L.	Idaho	1,000,000	1	1	*	....	....	....	40,000	May	18 9	02
126	Silver Cord, G. s. L.	Colo.	5,000,00	500,000	10	*	....	....	....	275,000	Apl.	1889	.1
127	Silver King, s	Ariz.	10,000,00	100,000	100	50,000	Jun.	1888	.50	1,950,000	July	1887	.25
128	Silver Mg. of L. V.	N. M.	500,000	500,000	1	*	....	....	....	25,000	June	1889	.05
129	Silverton, G. s. L.	Colo.	2,000,000	200,000	10	*	....	....	....	50,000	Nov	1888	.02
130	Small Hopes Cons., s	Colo.	5,000,000	250,000	20	*	....	....	....	3,137,500	Jun	1889	.10
131	Smuggler, s. L	Colo.	600,000	60,000	10	*	....	....	....	66,700	Aug.	1883	.25
132	Spring Valley, G	Cal..	200,000	200,000	1	50,000	Oct.	1886	.25	50,000	Jan	1881	25
133	Standard, G. s	Cal..	10 000,00	100,000	100	25,000	Oct.	1884	.25	8,595,000	Jun.	1888	.05
134	Stormont, s	Utah	500,00	50,000	1	*	....	....	....	155,000	Nov	1881	.05
135	St. Joseph, L	Mo.,	1,500,00	150,000	10	*	....	....	....	844,00	Dec	1887	.20
136	Surinam, G. s.	D. G.	3,000,00	600,000	5	*	....	....	....	195,000	Nov.	1887	.05
137	Swansea, G	Colo.	600,00	60,000	10	*	....	....	....	9,00	Apl.	1888	.02½
138	Syndicate, G	Cal..	10,000,000	100,000	100	38,729	July	1882	.15	48,308	Sept	1885	.10
139	Tamarack, C	Mich.	1,000,000	40,000	25	520,00	Apl	1885	3.00	960,000	July	1889	3.00
140	Tip Top, s	Ariz.	10,000,000	100,000	100	250,000	Sept	1883	.25	100,000	Nov	1881	.20
141	Tombstone, G. s. L.	Ariz.	12,500,000	500,000	25	*	....	....	....	1,350,000	Apl.	1882	.10
142	United Verde, C	Ariz.	3,000,000	300,000	10	*	....	....	....	97,500	Feb.	1884	.20
143	Valencia, M	N. H.	150.000	1,500	100	*	....	....	....	37,500	Apl.	1886	2.50
144	Viola Lt., s. L	Idah	750,000	150,000	5	*	....	....	....	272,500	Oct.	1888	37½
145	Ward Cons., s. L	Colo.	2,000,000	200,000	10	....	....	....	....	10,000	Apl.	1889	.05
146	Yankee Girl	Colo	2,500,000	250,000	10	*	....	....	....	1,275,000	July	1887	.10
147	Yellow Jacket, G. s.	Nev..	12,000,000	120,000	100	5,508,000	Mar	1889	.50	2,184,000	Aug	1871	1.50
148	Webb City, L. s.	Mo..	55,000	11,000	5	....	....	....	....	3,300	Jun	1889	.10

NON-DIVIDEND-PAYING MINES.

	Name and Location of Company.	Capital Stock.	Shares. No.	Shares. Par Value	Assessments. Total levied	Assessments. Date & am't of last,		
1	Agassiz Cons., s. L.	Colo.	$2,500,000	50,000	$50	*	....	....
2	Alloues, C	Mich	2,000,000	80,000	25	$697,000	Mar	1889 .50
3	Alpha Con., G. s.	Nev.,	3,000,00	30,000	100	8,750	July	1889 87½
4	Alta, s	Nev.	10,080,000	100,800	100	2,248,800	Sept	1888 .50
5	Amador, G	Cal.	400,00	200,000	2	*	....	....
6	American Flag, s.	Colo	1,250,000	125,000	10	300,000	Jun	1877 .5
7	Angio-Montana, Lt.	Mon.	600,000	120,000	5	....	....	....
8	Appalachian, Lt., G	N. C.	1,500,00	300,00	5	....	....	....
9	Astoria, G	Cal..	200,000	100,000	2	....	....	....
10	Barcelona, G	Nev..	5,000,00	200,000	25	*	....	....
11	Bechtel Con., G	Cal.	10,000,00	100,000	100	173,500	Jan	1888 .10
12	Belmont, s	Nev.	5,000,00	50,000	100	735,00	Apl	1886 .10
13	Best & Belcher, G. s	Nev.	10,080,00	100,800	100	3,130,19	Jun	1889 .25
14	Big Pittsburg, s. L.	Colo	20,000,00	200,000	100	*	....	....
15	Bi Metallic, s	Mon.	5,000,000	200,000	25	*	....	....
16	Black Oak, G	Cal.	3,000,00	300,00	10	*	....	....
17	Boston Con., G	Cal.	10,000,00	100,000	100	170,00	Nov	1883 .25
18	Bremen, s	N. M	5,000,000	500,000	10	*	....	....
19	Brunswick, G	Cal..	2,000 00	400,00	5	*	....	....
20	Bullion, G. s.	Nev..	10,000,00	100,000	100	4,007,000	Aug.	1888 .50
21	Calaveras, G	Cal..	500,00	500,00	1	*	....	....
22	Carisa, G	Wy	500.00	100,00	5	*	....	....
23	Carupano, G. s. L. C.	Ven.	200,000	100,000	2	*	....	....
24	Cashier, G. s	Colo.	500,000	250,00	2	*	....	....
25	Cen Con'l, G. s. L.	C. & A	2,000,00	200,00	10	*	....	....
26	Charles Dickens, G. s.	Idau.	1,250,000	250,00	5	*	....	....
27	Cherokee, G	Cal	1,500,00	150,00	10	*	....	....
28	Chollar, s	Nev..	11,200,00	112,000	100	1,484,000	July	1889 .50
29	Cleveland, T	Dak	1,000,000	500,00	2	*	....	....
30	Coichis	N.M.	500,000	50,000	10	*	....	....
31	Commonwealth, s.	Nev.	10,000,00	100,000	10	170,000	Nov	1888 .50
32	Comstock, G. s.	Nev.	10,000,000	100,00	100	30 000	Mar.	1887 .15
33	Con. Imperial, G. s.	Nev.,	5,000,00	50,00	100	1,800,00	Nov.	1888 .05
34	Con. Pacific, G	Cal..	6,000 00	60,00	100	180,00	Fb	1889 .15
35	Cons Silver, s	Mo..	2,500,000	250,000	10	*	....	....
36	Courtlandt	Colo.	500,000	50,000	10	*	....	....
37	Crescent, s. L	Colo.	3,000,00	300,00	10	*	....	....
38	Crocker, s. L	Nev..	10,000,000	100,000	100	125,000	Jun.	1889 .10
39	Crowell, G	N. C	500,000	500,000	1	*	....	....
40	Dahlonega, G	Ga..	250,000	250,000	1	*	....	....
41	Dandy, s	Colo.	5,000,00	500,00	10	*	....	....
42	Dardanelles, G	Cal..	1,000,00	100,00	10	*	....	....
43	Decatur, G. s.	Colo.	1,500,00	300,00	5	*	....	....
44	Denver City, s. L	Colo.	5,000,000	500,00	10	*	....	....
45	Denver Gold, G	Colo.	300,000	60,000	5	*	....	....
46	Durango, G	Colo.	500,00	500,00	1	*	....	....
47	Eastern Dev. Co., Lt.	N. S.	1,500,000	150 000	10	990,00	Mar.	1888 1.00
48	El Cristo, G. s	U.S.C	1,000,00	500,00	2	*	....	....
49	El Grando, G	Cal.	1,250,00	250,00	4	*	....	....
50	El Talento, G	U.S.C	1,000,00	500,00	2	*	....	....
51	Empire, s	Utah	10,000,00	100,00	100	*	....	....
52	Eureka Tunnel, s. L	Nev..	10,000,00	100,00	100	*	....	....
53	Exchequer	Nev.	10,000,00	100,00	100	515,000	Apl,	1889 .25
54	Found Treasure, G. s.	Nev..	10,000,00	100,000	100	30,500	Apl	1889 12½
55	Gogebic L. Sya., I	Wis.	5,000,000	200,000	25	*	....	....
56	Gold Cup, s	Colo	500,000	500,00	1	*	....	....
57	Golden Era, s	Mon.	2 000,000	200,00	10	*	....	....
58	Gold Placer, G	Colo.	5,000,00	200,00	25	229,314	Dec.	1888 .25
59	Gold Rock, G	Cal.	1,000,00	500,000	2	*	....	....
60	Goodshaw, G	Cal..	10,000,00	100,00	100	*	....	....
61	Grand Belt, C	Tex..	12,000,00	120,00	100	*	....	....
62	Grand Duke, s	Colo.	800,00	80,000	10	*	....	....
63	Great Remance, G	U.S.C	1,000,000	500,00	2	*	....	....
64	Gregory-Bobtail, G	Colo.	550,000	550,000	1	*	....	....
65	Gregory Con., G	Mon.	3,000,000	300,00	10	....	....	....
66	Hariem M. & M. Co, G	Cal..	1 000 000	200,00	5	....	....	....
67	Head Cent. & Tr. s. G	Ariz.	10,000,000	100,000	100	....	....	....
68	Hector, G. s. L	Colo.	1,500,00	300,00	5	45,000	Jan.	1889 .15
69	Highland, C	Mich	500,000	25,000	20	....	....	....
70	Hollywood	Cal..	200,00	100,000	2	....	....	....
71	Hortense, s	Colo.	2,000,000	200,000	10	....	....	....
72	Huron, C	Mich	1,000,00	40,000	25	280,000	May	1887 3.00
73	Iron Gold & Silver, s	N. M	2,000,000	200,000	10	*	....	....
74	Iroquois, C	Wis.	1,000,000	40 000	25	....	....	....
75	Iroquois, C	Mich	1,250,000	50,000	25	*	....	....
76	J. D Reymert	Ariz	10,000,000	100,000	100	*	....	....
77	Julia Cons., G. s.	Nev..	11,000,00	110,000	100	1,660,000	Jan.	1889 .10
78	Kearsarge, C	Mich	1,250,000	50,000	25	190,000	Oct.	1887 1.00
79	Lacrosse, G	Colo.	1,000,000	100,000	10	*	....	....
80	Lee Basin, s. L	Colo.	5,000,000	500,000	10	*	....	....
81	Mammoth Bar., G	Cal..	10,000,000	100,000	100	50,000	Dec.	1881 ....
82	May Belle, G	Cal..	10,000,000	100,000	100	84,000	Mar.	1884 .10
83	Mayflower Gravel	Cal..	1,000,000	100,000	10	485,000	Jan	1889 .50
84	Medora, G	Dak.	250,000	250,000	1	*	....	....
85	Mexican, s. s	Nev..	10,000,000	100,000	100	2,775,760	July	1889 .25
86	Middle Bar, G	Cal.	400,000	200,000	2	*	....	....
87	Mike & Starr, s. L	Colo.	1,000,000	200,000	5	*	....	....
88	Monitor, G	Colo.	100,000	100,000	1	*	....	....
89	Moose Silver, s	Colo.	3,000,000	300,000	10	*	....	....
90	Mutual Mg. & Sm.	W'sh	100,000	100,000	1	*	....	....
91	Native, C	Micn	1,000,000	40,000	25	*	....	....
92	Neath, G	Cal..	1,000,000	100,000	10	*	....	....
93	Nevada Queen, s	Nev..	10,000,000	100,000	100	250,000	Jun.	1889 .50
94	New Germany, G	N. S.	100,000	100,000	1	*	....	....
95	New Pittsburg, s. L	Colo	2,000,000	200,000	10	*	....	....
96	N. Commonw'h, s	Nev.	10,000,000	100,000	100	60,000	Apl	1889 .30
97	North Standard, G	Cal..	10,000,000	100,000	100	20,000	Nov	....
98	Noonday	Cal..	600,000	60,000	10	208,000	Dec.	1881 .10
99	Oneida Chief, G. s.	Cal..	500,000	125,000	100	*	....	....
100	Oriental & Miller, s.	Nev..	10,000,000	400,000	25	....	....	....
101	Osceola, G	Nev..	5,000,000	50,000	100	*	....	....

NEW YORK MINING STOCKS QUOTATIONS.

DIVIDEND-PAYING MINES.

NAME AND LOCATION OF COMPANY.	Aug 10.		Aug. 12.		Aug. 13.		Aug. 14		Aug. 15.		Aug. 16		SALES.
	H.	L.	H.	L.	H.	L.	H.	L.	H	L.	H.	L.	
Argenta, Nev	....	.....	....	....	....	....	....	....	....	....	....	....	.....
Aspen	....	.....	....	....	....	....	....	....	5.50	....	....	....	100
Atlantic, Mich	..	.....	....	....	....	....	....	....	....	....	....	....	.....
Belcher, Nev	....	.....	....	....	....	....	....	....	....	....	....	....	.....
Belle Isle, Nev	....	.....	....	....	....	....	....	....	....	....	....	....	.....
Bodie Cons., Cal	....	.....	....	....	....	....	....	....	.90	....	1.00	.90	940
Breece	....	.....	....	....	....	....	....	....	....	....	....	....	.....
Bulwer, Cal	....	.....	....	....	.....	....	....	....	....	....	....	....	.....
Caledonia, Dak	....	.....	....	....	....	....	....	....	....	....	....	....	.....
Calumet & Hecla	....	.....	....	....	....	....	....	....	....	....	....	....	.....
Chollar, Nev	....	.....	....	....	....	....	....	....	2.15	....	....	....	100
Chrysolite	....	.....	....	....	....	....	....	....	....	....	....	....	.....
Colorado Cent'l, Colo	....	.....	....	....	....	....	....	....	....	....	....	....	.....
Cons. Cal. & Va., Nev	7.50	7.38	....	....	....	....	7.25	....	7.63	....	7.50	....	900
Crown Point, Nev	2.50	.....	....	....	....	....	....	....	....	....	3.10	....	440
Deadwood	....	.....	....	....	....	....	....	....	....	....	....	....	.....
Eureka Cons	....	.....	....	....	....	....	....	....	1.60	....	....	....	150
Father de Smet, Dak	....	....	....	....	....	....	....	....	....	....	....	....	.....
Franklin, Mich	....	.....	....	....	....	....	....	....	....	....	....	....	.....
Gould & Curry, Nev	....	.....	2.00	....	....	....	....	....	....	....	2.20	2.15	450
Grand Prize, Nev	....	....	....	....	....	....	....	....	....	....	....	....	.....
Hale & Norcross, Nev	....	....	2.90	....	....	....	....	....	....	....	3.15	....	300
Holyoke, Ida	....	....	....	....	....	....	....	....	....	....	....	....	.....
Homestake, Dak	....	....	....	....	....	....	....	....	....	....	....	....	.....
Horn-Silver, Ut	1.30	.....	1.25	....	....	....	....	....	1.25	....	1.20	....	900
Iron Hill, Dak	.55	.....	....	....	....	....	....	....	....	....	2.20	....	80
Iron Silver, Colo	....	....	....	....	....	....	....	....	....	....	....	....	200
Leadville C., Colo	....	.....	....	....	....	....	....	....	....	....	....	....	.....
Little Chief, Colo	....	.....	....	....	....	....	.34	....	....	....	....	....	500
Little Pittsburg, Colo	....	.....	....	....	....	....	....	....	....	....	....	....	.....
Mono, Cal	....	.....	....	....	....	....	....	....	....	....	....	....	.....
Moulton, Mont	....	.....	....	....	....	....	....	....	....	....	....	....	.....
Mount Diablo, Nev	..	.....	....	....	....	....	....	....	....	....	....	....	.....
Navajo, Nev	....	.....	....	....	....	....	....	....	....	....	....	....	.....
North Belle Isle, Nev	.....	.....	1.10	.....	....	....	....	....	.95	....	.90	....	600
North Star, Cal	....	.....	....	....	....	....	....	....	....	....	....	....	.....
Ontario, Ut	....	.....	....	....	....	....	....	....	....	....	....	....	.....
Ophir, Nev	4.40	.....	....	....	....	....	4.90	....	5.00	....	5.00	....	550
Osceola, Mich	.....	....	....	....	....	....	....	....	....	....	....	....	.....
Plutus, Colo	.81	.....	....	....	.79	....	.80	....	....	....	.78	....	1,000
Plymouth, Cal	..	.....	....	....	5.00	....	5.00	4.00	5.00	4.50	4.00	....	740
Quicksilver Pref., Cal	....	.....	....	....	....	....	....	....	....	....	....	....	.....
" Com., Cal	....	.....	....	....	....	....	....	....	....	....	....	....	.....
Robinson Cons. Colo	....	.....	....	....	....	....	....	....	....	....	.45	....	100
Savage, Nev	....	.....	....	....	....	....	....	....	....	....	1.80	....	200
Sierra Nevada, Nev	....	.....	....	....	....	....	2.50	....	2.55	....	2.85	2.80	800
Silver King, Ariz	....	.....	....	....	....	....	....	....	....	....	....	....	.....
Silver Mt. of L. V	....	.....	....	....	....	....	....	....	....	....	....	....	.....
Small Hopes	..	.....	....	....	....	....	....	....	1.00	....	....	....	500
Standard	....	.....	....	....	....	....	....	....	....	....	1.05	1.00	2,000
Tamarack	....	.....	....	....	....	....	....	....	....	....	....	....	.....
Ward Con	1.70	1.65	1.70	1.65	1.70	1.65	1.75	1.55	1.60	1.50	1.55	1.40	15,333
Yellow Jacket	....	..	....	..	2.25	....	....	....	....	....	3.20	....	100

NON-DIVIDEND-PAYING MINES.

NAME AND LOCATION OF COMPANY.	Aug. 10.		Aug. 12.		Aug. 13.		Aug. 14.		Aug. 15.		Aug. 16.		SALES.
	H.	L.	H.	L.	H.	L.	H.	L.	H	L.	H.	L.	
Alloues, Mich	....	....	....	....	....	....	....	....	....	....	....	....	.....
Alta, Nev	....	....	....	....	....	....	1.45	....	1.45	..	....	....	1.45	.....	550
Amador, Cal	....	....	....	....	....	....	....	....	....	....	....	....	.....
American Flag, Colo	....	....	....	....	....	....	....	....	....	....	....	....	.....
Astoria, Cal	.20	..	.20	....	....	....	.20	....	.20	....	....	....	.20	....	2,200
Barcelona, Nev	....	....	....	....	....	....	....	....	....	....	....	....	.....
Best & Belcher, Nev	3.50	....	....	....	....	....	....	....	3.75	....	3.80	....	600
Brunswick, Cal	....	....	....	....	....	....	....	....	....	....	....	1.00	....	10
Buffalo Iron Min'g	....	....	....	....	....	....	....	....	....	....	....	....	.....
Bullion, Nev	....	....	....	....	....	....	....	....	....	....	....	....	.....
Cashier, Colo	....	....	....	....	....	....	....	....	....	....	....	....	.....
Castle Creek, Id	....	....	....	....	....	....	....	....	....	....	....	....	.....
Colchis, N. M	....	....	....	....	....	....	....	....	....	....	....	....	.....
Commonw'th, Nev	3.20	....	....	....	....	....	....	....	....	....	2.60	....	2.50	....	670
Con. Imperial, Nev	....	....	....	....	....	....	....	....	....	....	....	....	.....
Con Pacific, Cal	....	....	....	....	....	....	....	....	....	....	....	....	.....
Denver City, Colo	....	....	....	....	....	....	....	....	....	....	....	....	.....
Eastern Oregon	....	....	....	....	....	....	....	....	....	....	....	....	.....
El Cristo, Rep of Col	....	....	....	....	....	....	....	....	....	....	1.10	1.05	1.05	....	1.10	1.00	1.05	....	4,850
Excelsior, Cal	....	....	....	....	....	....	....	....	....	....	....	....	.....
Exchequer Nev	....	....	....	....	....	....	....	....	....	....	....	....	.....
Hector, Cal	....	....	....	....	....	....	....	....	....	....	....	....	.....
Julia, Nev	....	....	....	....	....	....	....	....	....	....	....	....	.....
Kingst'n & Pemb'ke	....	....	....	....	....	....	....	....	....	....	....	....	.....
Kossuth, Nev	....	....	....	....	....	....	....	....	....	....	....	....	.....
Lacrosse, Colo	....	....	....	....	....	....	....	....	....	....	....	....	.....
Lee Basin, Colo	....	....	....	....	....	....	....	....	....	....	....	....	.....
Mexican, Nev	2.70	....	3.05	....	....	....	....	....	....	....	3.15	....	3.40	....	900
Middle Bar, Cal	....	....	....	....	....	....	....	....	....	....	....	....	.....
Monitor, Colo	....	....	....	....	....	....	....	....	....	....	....	....	.....
Mutual Sm & M. Co	1.50	....	1.50	....	1.50	....	1.50	....	....	....	1.50	....	1.50	....	1,550
Nevada Queen, Nev	....	....	....	....	....	....	....	....	....	....	....	....	.....
N Com'nw'th, Nev	....	....	....	....	....	....	....	....	....	....	....	....	.....
Occidental, Nev	2.05	....	2.05	....	....	....	....	....	....	....	2.00	....	2.00	1.95	2.00	1.95	2,250
Oriental & Mil., Nev	....	....	....	....	....	....	....	....	....	....	....	....	.....
Phœnix of Ariz	....	....	....	....	....	....	....	....	....	....	.17	....	....	....	....	....	100
Potosi, Nev	....	....	....	....	....	....	....	....	....	....	....	....	.....
Rappahann'k, Va	.05	....	....	....	....	....	....	....	....	....	....	....	.....
S. Sebastian, San S	....	....	....	....	....	....	....	....	....	....	....	....	.....
Scorpion, Nev	....	....	....	....	....	....	....	....	....	....	....	....	.....
Shoshone Idaho	4.00	....	....	....	....	....	....	....	....	....	....	....	.....	....	100
Silver Cord	....	....	....	....	....	....	....	....	....	....	....	....	.....
Silver Hill, Nev	....	....	....	....	....	....	....	....	....	....	....	....	.....
Silver Queen	....	....	....	....	....	....	....	....	....	....	....	....	.....
Sullivan Con	....	....	....	....	....	....	....	....	....	....	....	....	.....
Sutro Tunnel, Nev	....	....	....	....	....	....	....	....	....	....	....	....	.55	....	300
" Trust Cert.	....	....	....	....	....	....	....	....	....	....	.60	....	.60	....	....	....	900
Tornado, Nev	....	....	....	....	....	....	....	....	....	....	....	....	.....
Union Cons., Nev	2.80	....	....	....	....	....	....	....	....	....	2.80	....	3.10	....	3.30	....	950
United Copper	1.10	..	1.20	....	....	....	....	....	....	....	1.15	....	....	....	1.05	....	90
Utah, Nev	.95	....	....	....	....	....	....	....	....	....	1.00	....	.95	..	....	....	1.10	....	700
	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.....
	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.....

*Ex. dividend. †Dealt in at the New York Stok Ex. Unlisted securities ‡Assessment unpaid Dividend shares sold, 25 4 0. Non dividend shares sold, 18,920. Total New York, 44,340.

BOSTON MINING STOCK QUOTATIONS.

NAME OF COMPANY.	Aug. 9	Aug. 10.	Aug. 12.		Aug. 13		Aug. 14.		Aug. 15.		SALES.
Atlantic, Mich	..	..	..	..	..	..	..	..	9.50	..	50
Bodie, Cal	....	....	....	....	....	....	....	....	....	....	.....
Bonanza Developm't	....	....	....	....	....	....	....	....	....	....	.....
Bost. & Mont., Mont	36.00	....	36.00	35.50	36 00	35 75	36 75	36.00	36.00	35.50	36 75	35.75	2,557
Breece, Colo	....	....	....	....	....	....	....	....	....	....	....	....	.....
Calumet & Hecla, Mich	224	223	223	....	223½	222	224	223½	224	....	23	223½	767
Catalpa, Colo	....	....	....	....	....	....	....	....	....	....	....	....	.....
Central, Mich	....	....	....	....	....	....	....	....	....	....	....	....	.....
Chrysolite, Colo	....	....	....	....	....	....	....	....	....	....	....	....	.....
Con. Cal & Va., Nev	....	....	....	....	....	....	....	....	....	....	....	....	.....
Dunkin, Colo	1.03	....	1.03	....	1.04½	....	....	....	....	....	....	....	500
Enterprise	....	....	....	....	....	....	....	....	....	....	....	....	.....
Franklin, Mich	..	....	9.50	9.25	....	....	....	....	....	....	....	....	75
Hale & Norcross, Nev	....	....	....	....	....	....	....	....	....	....	....	....	.....
Honorine, Utah	....	....	....	....	....	....	....	....	....	....	....	....	.....
Little Chief, Colo	....	....	....	....	....	....	....	....	....	....	....	....	.....
Little Pittsburg, Colo	..	....	....	....	....	....	....	....	....	....	....	....	.....
Martin White, Nev	....	....	....	....	....	....	....	....	....	....	....	....	.....
Mono, Cal	....	....	....	....	....	....	....	....	....	....	....	....	.....
Napa, Cal	....	....	....	....	....	....	....	....	....	....	....	....	.....
Ontario, Utah	....	....	....	....	....	....	....	....	....	....	....	....	.....
Osceola, Mich	..	..	10.50	....	11.00	....	11.00	....	10.00	..	12.00	11.75	295
Pewabic, Mich	....	....	....	....	....	....	....	....	....	....	....	....	.....
Quincy, Mich	....	....	....	....	....	....	....	....	51.00	....	....	....	10
Ridge, Mich	....	....	....	....	....	....	....	....	....	....	....	....	.....
Sierra Nev., Nev	....	....	....	....	....	....	....	....	....	....	....	....	.....
Silver King, Ariz	....	....	....	....	....	....	....	....	....	....	....	....	.....
Standard, Cal	....	....	....	....	....	....	....	....	....	....	....	....	.....
Tamarack, Mich	102½	....	102½	102	102	....	102½	..	101¾	....	102	101¾	614

NAME OF COMPANY	Aug. 9	Aug. 10	Aug. 12.		Aug. 13		Aug. 14.		Aug. 15.		SALES.
Alloues, Mich	..	..	....	....	....	....	....	....	....	....	.....
Arnold, Mich	....	....	....	....	....	....	....	....	....	....	.....
Astec, Mich	....	....	....	....	....	....	....	....	....	....	.....
Brunswick, Cal	....	....	....	....	....	....	....	....	....	....	.....
Butte & Bost., Mont	....	....	....	....	....	....	....	....	....	....	.....
Canada	....	....	....	....	....	....	....	....	....	....	.....
Casnier, Colo	....	....	....	....	....	....	....	....	....	....	.....
Crescent, Colo	....	....	....	....	....	....	....	....	....	....	.....
Denver City, Colo	....	....	....	....	....	....	....	....	....	....	.....
El Cristo, Rep of Col	....	....	....	....	....	....	....	....	....	....	.....
Everett, Mich	....	....	....	....	....	....	....	....	....	....	.....
Hanover, Mich	....	....	....	....	....	....	....	....	....	....	.....
Humboldt, Mich	..	..	....	....	....	....	....	....	....	....	.....
Hungarian	....	....	....	....	....	....	....	....	....	....	.....
Huron, Mich	....	....	....	....	....	....	....	....	....	....	.....
Kearsarge, Mich	....	....	....	....	....	....	....	....	....	....	.....
Mesnard, Mich	....	....	....	....	....	....	....	....	....	....	.....
National, Mich	....	....	....	....	....	....	....	....	1.00	....	....	....	1.00	....	150
Native, Mich	....	....	....	....	....	....	....	....	....	....	....	....	.....
Pontiac, Mich	....	....	....	....	....	....	....	....	....	....	....	....	.....
Rappahannock, Va	....	....	....	....	....	....	....	....	....	....	....	....	.....
Rockland	....	....	....	....	....	....	....	....	....	....	....	....	.....
Santa Fe, S. Mex	.70	.68	....	....	....	....	.65	....	.70	....	.72½	.67½	.73	.72	2,750
Security, Colo	....	....	....	....	....	....	....	....	....	....	....	....	.....
Shoshone Idaho	....	....	....	....	....	....	....	....	....	....	....	....	.....
South Side, Mich	....	....	....	....	....	....	....	....	....	....	....	....	.....
St Louis Cop., Mich	....	....	....	....	....	....	....	....	....	....	....	....	.....
Sullivan, Dak	....	....	....	....	....	....	....	....	....	....	....	....	.....

Boston: Dividend shares sold, 4,888. Non-dividend hares sold, 2,900. Total Boston, 7,788.

COAL STOCKS.

NAME OF COMPANY.	Par v l. of sh'rs.	Aug. 10.		Aug. 12.		Aug. 13.		Aug. 14.		Aug. 15.		Aug. 16		Sales.
		H.	L.	H.	L.	H.	L.	H	L.	H.	L.	H.	L.	
American Coal	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cambria Iron	....	95	.....	.....	.....	.....	.....	95½	.....	100	.....	.....	.....	320
Cameron Coal & Iron Co	....	29½	29¼	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	200
Ches. & O. RR	100	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Chic. & Ind. Coal RR	100	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Do. pref	100	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Col. & Hocking Coal	100	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Col., C. & I	100	27	.....	27	26¼	26⅝	26¾	.....	.....	27¼	27	27¾	27⅝	1,482
Consol. Coal	100	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Del. & H. C	100	.....	.....	.....	.....	147¼	146¾	148¾	146¾	148	147⅝	148¼	148	4,451
D., L. & W. RR	50	146	145⅝	146⅜	146	146¼	145½	145⅝	145¼	145¾	145¼	14 ¾	145½	16,040
Hocking Valley	100	15	14¼	15	...	14¾	14⅝	15	14⅜	14½	14¼	14¾	.....	2,015
Hunt. & Broad Top	....	.....	.....	18¼	.....	.....	.....	.....	.....	.....	.....	.....	.....	3
Do. pref	....	46	...	46	...	.....	.....	.....	.....	45¾	.....	.....	.....	59
Lehigh C. & N	50	58	.....	.....	.....	53	.....	53⅜	53	54	53⅞	.....	.....	1,044
Lehigh & W. B. Coal	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lehigh Valley RR	50	53½	.....	53½	53⅜	53¼	.....	53½	.....	53½	.....	.....	.....	693
Marshall Con. Coal	100	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Do. pref	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mahoning Coal	100	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Maryland Coal	100	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Morris & Essex	100	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Central Coal	50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
N. J. C. RR	100	112¾	112⅛	112½	.....	112½	112¼	112¾	112	112⅜	112½	113	112⅛	3,560
N. Y. & S. Coal	100	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
N. Y., Susq. & Western	100	.....	.....	8¾	8⅛	8¾	8⅜	.....	.....	8¾	.....	.....	.....	780
Do. pref	100	.....	.....	34	33¾	.....	.....	.....	.....	.....	.....	33	.....	350
N. Y. & Perry C. & I	100	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Norfolk & Western R.R.	50	16	.....	.....	.....	16¼	15¾	16⅜	16¼	.....	.....	16	.....	900
Do. pref	50	.....	.....	52½	52	53⅛	52½	54¼	53	54⅜	53¼	53¾	53½	8,620
Penn. Coal	50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Penn. RR	50	52⅜	52¼	52⅛	52¼	52⅝	.....	52⅝	.....	53	52¾	.....	.....	4,433
Ph. & R. RR**	....	45½	45	45⅜	45	45¼	44¾	45	44⅜	44⅞	44½	44¾	44¼	56,680
Sunday Creek Coal	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Do. pref	100	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tennessee C. & I. Co	....	40	.....	39¾	.....	39⅞	.....	.....	.....	39½	39¼	39⅞	39¾	645
Do. pref	100	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Westmoreland Coal	..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

**Of the sales of this stock, 11,495 were in Philadelphia, and 45,165 in New York. Total sales, 102,252.

San Francisco Mining Stock Quotations.

COMPANY	CLOSING QUOTATIONS. Aug. 9.	Aug. 10.	Aug 12.	Aug. 13.	Aug. 14.	Aug. 15.
Alpha	.....	.....	.....	.....	.....	.....
Alta	.....	1.30	.35	1.35	1.40	1.40
Belcher	....	..	.....	.....	.....	.....
Belle Isle	..	.....	1.05	.....	.....	.....
Best & Bel	3.40	3.55	3.60	3.55	3.95	3.80
Bodie	.80	.80	.90	.85	.90	.90
Bulwer	..	.....	.10	.....	.....	.10
Chollar	1.25	1.25	1.30	1.30	1.45	2.10
C'm'weal'h	3.20	3.20	3.00	.....	2.50	2.55
Con. C. & V	7.38	7.25	7.50	7.38	7.75	7.75
Con. Pac.	.....	.....	1.50	.....	.....	.....
Crown Pt.	2.40	2.40	2.85	2.70	3.50	3.20
Eureka C.	.....	.....	.....	.....	.....	.....
Gould & C.	1.80	1.80	1.90	1.90	2.20	2.10
Grd. Prize	..	.....	.....	.....	.....	.....
Hale & N.	.....	.....	2.95	.....	3.10	3.10
M. White	..	.....	.....	.....	.....	.....
Mexican	2.70	2.80	1.95	3.00	3.45	3.35
Mono	.....	.50	.55	.55	.50	.55
Mt Diablo	..	.....	2.75	.....	.....	.....
Navajo	....	.....	.....	.....	.....	.25
Nev. Queen	1.00	.....	1.00	.90	.....	.80
N. Belle I	1.00	1.05	.....	1.00	90	.80
Occidental	2.00	.....	1.95	1.85	1.90	1.85
Ophir	4.35	4.50	4.70	4.65	5.25	5.13
Potosi	1.30	1.35	.....	1.40	1.65	1.65
Savage	.....	.....	1.45	1.40	1.75	1.80
Sierra Nev	2.15	2.20	2.35	2.35	2.70	2.75
Union Con	2.60	.....	2.80	2.75	3.15	3.35
Utah	.....	.90	1.00	.95	1.10	1.05
Yellow Jkt	.....	.....	2.85	.....	3.30	3.25

STOCK MARKET QUOTATIONS.

Baltimore, Md.

Company.	Bid.	Asked.
Atlantic Coal	1.00	1.50
Balt. & N. C.	.10	.25
Big Vein Coal	....	....
Conrad Hill	....	.15
Cons. Coal	.23	.27
Diamond Tunnel	.30	.50
George's Crk. C	....	1.10
North State (Balt.)	.15	.25
Silver Valley	.40	....

Prices bid and asked during the week ending Aug. 15th, 1889.

Birmingham, Ala.

Company.	Bid.	Asked.
Ala. R. Mill Co.	...	$60
Ala. Con. C. & C. Co.	$[illegible]74	....
*Alice Furnace	$[illegible]	....
Anna Howe G. Mg. Co.	$3½	$5½
Bess. Land Co	$22@$22½	$22½@$22¾
Bir. Fur. & Mg.	...	....
Bir. Mg. & M g.	....	$130@$135
Broken Arrow	....	$3¾
De Bardeleben C. & I. Co.	$50	$55
Decat. L. Imp.	$10½@11	$11¼
DecaturMin.L.	....	$25
Enterprise Mfg.	$17½	$35
*Eureka	....	$105
Hen. S. & M.Co.	$65	$90
Jagger Bowley C. & C	....	$11@$11½
Mag-Ellen	$96	....
*Mary Pratt	....	....
Sloss I. & S.	$41½	$43
†Sloss I. & S.	....	$93
††Sloss I. & S.	....	$65½
Tuscaloose C., I. & L. Co.	$20	....
Tenn. C. & I. Co.	$38¼	....
*Williamson	$63½@$102	....
Woodstock I. Co.	$57	$58¼@$59

Prices bid and asked during week ending Aug. 13th.
* Bonds. † First mortgage. †† Second mortgage.

Kansas City. Aug. 13.

Company.	Par value.	Bid.	Asked.
Burch, L. & Z., Mo.	$ 1	$0.15	$...
Ida Hill, S., N. Mex.	100	90.00	100.00
K. C., Colo.	...	....	1.00
Kentucky, Z., Mo.	1	....	.10
La Motte, Mo.	100	98.00	100.00
Maverick, S., Colo.	10	9.70	10.00
Minnequa Zinc	....	....	....
Sonora, G. & S., Mex.	10	.98	1.01
Standard, S. S., Colo.	....	10.00	....
Templar, N. Mex.	1	.10	.15
Webb City, L. Z., Mo.	5	5.50	....
Wichita, L. Z., Kan.	100	....	40.00
Granite	....	....	..

Pittsburg, Pa.

Company.	H.	L.	Closing
Bridgewater Gas Co.	46.00	25.00	40.00
Chartiers Val. Gas	50.00	49.75	49.75
Consolidated Gas Co.	35 00	35.00	35.00
Forest Oil Co.	100.00	100.00	100.00
La Noria Mining	2.00	1.63	1.75
Manufact. Gas Co.	29.75	25.00	25.00
Nat. Gas Co. of W. Va	75.00	70.00	73.00
Ohio Valley Gas	35.00	35.00	35.00
People's Nat. Gas Co.	50 00	50.00	50.00
People's N. G. & P. Co.	18.00	17.00	17.75
Philadelphia Co.	37.75	37 00	37.38
Silverton Mg. Co.	1.00	.75	.75
Tuna Oil	67.63	67.63	67.63
Washington	81.00	79 00	81.00
W'house A. B. Co.	116.00	115.00	116 00
W'house E. Light	*52.75	*52.50	*52.75
Wheeling Gas	31.50	29.88	31.00

Sales during the week ending Aug. 15:
West. Electric 55 shs. $52¼@$52¾
* Actual selling price. †Ex-dividend.

St. Louis. Aug. 14.

CLOSING PRICES.	Bid.	Asked.
Adams, Colo.	$	....
American & Nettie	1.50	....
Anderson, Mont.	....	....
Arizona	.10	.12½
Aztec, N. Mex.	.47½	.48¾
Bi-Metallic, Mont.	....	39.00
Black Oak, Cal.	.26¼	.27½
Black Spar	.02	.02½
Buckskin	....	....
Carriboo, Idaho	.03	.03½
Central Silver	.32½	.45
Cleveland, Colo.	....	....
Cleveland, Idaho	.43¾	.48¾
Concepcion, Mex.	....	....
Dinero, Colo.	....	....
Golden Era, Mont.	.14	.16¼
Golden King	.33¾	.36¼
Golden West	.40	.70
Gold Run	.01	.03½
Granite Mountain, Mont.	....	48.00
Hope, Mont.	....	....
Ingram	....	....
Iron Clad, N. M.	.20	....
Ivanhoe, Colo.	.33¾	.36¼
I. X. L., Colo.	.12½	.14
Jumbo, Colo.	.00½	.01½
Keystone	.05½	.06
La Union	.05	.06
Little Giant	.30½	....
Major Budd, Mont.	.25	.27½
Mexican Imp., Mex.	.40	.41¼
Montrose Placer	....	....
Mountain Key	1.20	1.30
Mountain Lion	.30	.35
Neath, Colo.	.14	.16¼
Old Colony	....	.17½
Pat Murphy, Colo.	.18¾	.20
Phillips, Colo.	1.00	....
Pine Grove, Idaho	.41½	.42½
Queen of the West, Idaho	.13½	.15
Raspberry, Mont.	.10	.15
Rena	.02	.03
Rosalis	....	....
San Francisco, Mont.	.20	.21¼
San Pedro	.09½	.10
Small Hopes, Colo.	1.02½	1.10
Silver Age, Colo.	5.00	5.50
Silver Bell	....	....
Tourtelotte, Colo.	.15	.16¼
West Granite, Mont.	.90	.91¼
Wire Patch	....	....
Yuma, Ariz.	.38¾	.41¾

Auction Sales of Stocks.

The following securities were sold at public auction in New York last week:
5 shares Delaware and Hudson Canal Co. 146⅛
$1,000 Lehigh and Wilkesbarre Coal Co. 7 per cent. consolidated mortgage bond, due 1917. 116½
250 shares Morris & Essex Railroad Co. 155

Electric Stocks. Aug. 16.

The following closing quotations are reported to-day by J. Heron Crosman, New York City:

Stocks.	Par value.	Market price.
Brush	$ 50	$65 @ $85
" Illuminating	100	70 @ 75
Daft	100	45 @ 55
Consolidated	100	60 @ 62½
Edison	100	185 @ 190
" Illuminating	100	90 @ 95
Julien	100	20
" Traction	..	11 @ 12½
United States	100	50 @ 60
" " Illuminating	100	50 @ 60
Westinghouse	50	52 @ 53
Thomson-Houston	..	....
Thomson-Hous. Welding Co.	..	....

Trust Stocks. Aug. 16.

The following closing quotations are reported to-day by C. I. Hudson & Co., members New York Stock Exchange:

American Cotton Oil Certificates	$53¼@$53¼
Cattle Trust	16 @ 17
Distillers' & Cattle Feeders' Certificates	47⅝@ 47½
Linseed Oil Certificates	50 @ 54
National Lead "	23 @ 23⅛
Natural Gas "	110 @120
Standard Oil "	170 @171¼
Sugar Refineries Certificates	108¼@108¾

During the week ending Aug. 2d the following sales were made at the New York Stock Exchange:

	Sales.	Price H.	Price L.
American Cattle Feeders' Trust		16	50
American Cotton Oil Certificates	20,990	53⅞	52¼
Cattle Feeders' Trust	1,570	47⅞	46½
National Lead Trust	23,131	24⅜	23
Sugar Trust	44,391	110¼	106¾

Foreign Quotations.

Company.	London. Highest.	Aug. 3. Lowest.
Alturas Gold, Idaho	....	....
Arizona Copper, Ariz.	18s. 6d.	18s.
Callao Bis, Venz	6s.	5s.
Carlisle, N. Mex	5s.	4s.
Colorado United, Colo.	....	....
Columbian, S A	....	....
Comstock, Utah	....	....
Cons. Esmeralda, Nev.	3s.	2s.
Denver Gold, Colo.	2s.	1s. 6d.
Dickens Custer, Idaho	3s. 6d.	2s. 6d.
Eberhardt, Nev	....	....
El Callao, Venezuela	£3¼	£2¾
Elmore, Idaho	....	....
Empire, Mont	£2-6	£1-6
Flagstaff, Utah	1s.	6d.
Garfield, Nev	4s.	3s.
Hambley Freehold, N.C.	....	....
Ilex, Cal	£¾	£⅛
Jay Hawk, Mont	....	....
Josephine, Cal	9s.	7s.
Kohinour, Colo.	3s.	2s.
Mason & Barry, Port.	6s. 1½d.	6s.
Montana Lt., Mont	£1 15-16	£1 11-16
New California, Colo.	....	....
New Consolidated	....	....
New Emma, S., Utah	4s.	3s.
New Hoover Hill, N. C.	....	....
New La Plata, Colo.	2s. 6d.	1s 6d.
Old Lout, Colo.	....	....
Pittsburg Cons., Nev.	11s. 3d.	8s. 9d.
Quebrada, Venezuela	....	....
Richmond Con., Nev.	£1⅝	£1⅛
Ruby & Dunderberg, Nev	1s	6d.
Russell Gold, N. C.	2s. 9d.	2s. 3d.
Sierra Buttes, Cal.	£⅛	£⅝
Stanly, N. C	5s. 6d.	4s 6d.
United Mexican, Mex.	£7-16	£ 5-16
U. S. Placer, Colo.	4s. 6d.	3s. 6d.
Viola Lt., Idaho	2s. 6d.	1s. 6d
Paris.		Aug. 1.
Belmez, Spain	550.00	550.00
Bolco, Mex	....	....
Callao Bs. Venez	4.00	4 00
East Oregon, Ore	24.00	24 00
Forest Hill Divide, Cal	350.00	350.00
Golden River, Cal	390 00	390.00
" " parts.	35.00	35 00
Lexington, Mont.	132.50	132.50
" parts	4.25	4.25
Ouray, Colo	28.00	28.00
Rio Tinto, Spain	255.00	255 00
Tharsis, Spain	85.00	85.00

CURRENT PRICES.

These quotations are for wholesale lots in New York.

CHEMICALS AND MINERALS.

Acid—Acetic, ₱ 100 lbs. $2.00
Muriatic, 18°, ₱ 100 lbs. 1.00@1.50
Muriatic, 20°, ₱ 100 lbs. 1.12½@1.75
Nitric, 36°, ₱ 100 lbs. 4.00@5.50
Nitric, 42°, ₱ 100 lbs. 5.50@7.00
Oxalic, ₱ 100 lbs. 9.50@10.50
Sulphuric, 60°, ₱ 100 lbs. 80@1.25
Sulphuric, 66°, ₱ 100 lbs. 1.00@1.50

Alkali—36 p. c. 1.15@1.17½
Refined, 48 p. c. 1.20@1.22½
Refined, 58°. 1.12½@1.15

Alum—Lump, ₱ lb. 1¾
Ground, ₱ lb. 1¾@2
Lump ₱ ton, Liverpool. £4 17 6
Sulphate of Alumina, ₱ ton. £4 10

Aqua Ammonia—18°, ₱ lb. 4¾
20°, ₱ lb. 6
22°, ₱ lb. 6@7
26°, ₱ lb. 10@11

Ammonia—Sul., ₱ 100 lbs. 3.05@3.10
Carb., per lb. 7½@8½
Muriate per lb. 6½@8

Arsenic—White, powdered, ₱ lb. 3¼@3½
Red, ₱ lb. 3¾@3¾
White, at Plymouth, ₱ ton. £12 2 6d.

Asbestos—Am., p. ton. $50@$300
Italian, p. ton, c. i. f. L'pool. £18@£35

Asphaltum—P. ton. 13.00
Prime Cuban, ₱ lb. 4½@5½c.
Hard Cuban, ₱ ton. $28 00
Trinidad, refined, ₱ ton. $30.00

Barytes—Sulph., Am. prime white 17@20
Sulph., foreign, floated, p. ton. 19@21
Sulph., off color, p. ton. 11.50@14.00
Carb., lump, f.o.b. L'pool, ton £6
No. 1, casks, Runcorn " £4 10 0
No 2, bags Runcorn " " 3 15 0

Bleach—Over 35 p.c., ₱ lb. 1.75@1.85

Borax—₱ lb. 9¼
Refined at Liverpool, ₱ ton. £29

Brimstone—*See Sulphur.*

Bromine—₱ lb. 37@38

Chalk—₱ ton. 2 00
Precipitated, ₱ lb. 4¼@5

China Clay—English, ₱ ton 13.50@18.50
Southern, ₱ ton. 13.50

Chrome Yellow—₱ lb. 10@25

Cobalt—Oxide, ₱ lb. 2.60@2.90

Copper—Sulph. English Wks., ton. £30
Precip., Eng. Wks, unst. fluctuating

Copperas—Common, ₱ 100 lbs. 60@70
Best, ₱ 100 lbs. 75@1.00
Liverpool, ₱ ton, in casks £1 15s.

Cream of Tartar—Am. 99%. 22½
Powdered, 99 p. c. 23

Emery—Grain, ₱ lb. 4½@5
Flour, ₱ lb. 3¾@3¾

Feldspar—Ground, ₱ ton. 15 00

Fuller's Earth—Lump, ₱ bbl. .90@.95
Powdered, ₱ lb. 1¾@2

Gypsum—Calcined, ₱ bbl. 1.25

Iodine—Resublimed. 2.75

Kainit—₱ ton. 9.75@11.00

Kaolin—*See China Clay.*

Lead—Red, ₱ lb. 6¾@7
White, American, in oil, ₱ lb. 6¾@7¼
White, English, ₱ lb. 8½@8¾
Acetate, or sugar of 12@13

Lime Acetate—Amer. Brown. .95@1.00
" Gray 1.75@1.87½

Litharge—Powdered, ₱ lb. 6½@6¾
English flake, ₱ lb. .9@9½

Magnesite Greek, ₱ ton. 20 00

Manganese—Crude, per unit 23@28
Oxide ground, per lb. 2½@6½

Mercuric-Chloride—(*Corrosive Sublimate*) ₱ lb. 70@72

Mineral Wool—₱ lb. 2

Mica—In sheets according to size, 1st quality ₱ lb. 25@$6 00

Ochre—Yellow, "B. F.," ₱ ton, f.o.b. mill 30.00
"J. L. S.," ₱ lb. ex dock. 2½

Phosphate Rock—S. Carolina, per ton o. b. Charleston 5.50@6.75
Ground, ex vessel New York. 11.00
Canadian Apatite, lump, f. o. b. at Montreal ₱ ton 16 00

Phosphorus—₱ lb. 70@75

Plumbago—Ceylon, ₱ lb. 4@5
American, ₱ lb. 5@7

Potassium—Cyanide, ₱ lb. 30@40
Bromide, ₱ lb. 33
Chlorate, ₱ lb. 13@14
Carb. ₱ lb. 4.70@5.50
Caustic, ₱ lb. 7½@8
Iodide. 2.45@2.50
Muriate, ₱ 100 lbs. 1.80
Nitrate, refined, ₱ lb. 6@8
Bichromate, ₱ lb. 10½@11
Sulphate, ₱ 100 lbs. 2.30@2.35
Yellow Prussiate, ₱ lb. 17½@18
Red Prussiate, ₱ lb. 4 @5

Pumice Stone—Select lumps, lb. ¼
Original cks ₱ lb. 1¾@2
Powdered pure, ₱ lb. 2¼@2½

Pyrites—Non-cupreous, p. units 10d

Quartz—Ground, ₱ ton 14.00@18.00

Rotten Stone—Powdered, ₱ lb. 3½@3¾
Lump, ₱ lb. 6@10

Salt—Liverpool, ground ₱ sack. 75@80
Turk's Island ₱ bush. 25@27

Salt Cake—₱ lb. 0.2½@.65

Saltpeter—Crude, ₱ lb. 5½@5½
Refined, ₱ lb. 6@8

THE RARER METALS.

Aluminum—(Metallic) ₱ lb.	$4 00
Sheet, per lb.	6.00@8.00
Arsenic—Metallic, per lb.	40
Barium—(Metallic) per gram	$4.00
Bismuth—(Metallic), per lb.	2.75
Cadmium—(Metallic), per lb	1 00
Calcium—(Metallic) per gram	10 00
Cerium—(Metallic) per gram	7.50
Chromium—(Metallic), per gram	1 00
Cobalt—(Metallic), per lb	6.00
Didymium—(Metallic), per gram	9 00
Erbium—(Metallic), per gram	7 50
Gallium—(Metallic), per gram	140.00
Glucinum—(Metallic) per gram	12 00
Indium—(Metallic), per gram	9.00
Iridium—(Metallic), per oz.	7.00
Lanthanum—(Metallic), per gr.	1.00
Lithium—(Metallic), per gram	10.00
Magnesium—Per lb.	4 50
Manganese—Metallic, per lb.	1.10
Chem. pure, per oz.	10 00
Molybdenum—(Metallic), per gm	50
Niobium—(Metallic), per gram	5.00
Osmium—(Metallic), per oz.	65.00
Palladium—(Metallic), per oz.	35 00
Platinum—(Metallic), per oz.	9.00
Potassium—Metallic, per lb.	28 00
Rhodium—(Metallic), per gram.	5.00
Ruthenium—(Metallic), per gm.	5.50
Rubidium—(Metallic), per gram	2.00
Selenium—(Metallic), per oz.	1.80
Sodium—(Metallic) per lb.	2.50
Strontium—(Metallic), per gm.	60
Tantallum—(Metallic) per gram	9.00
Telurium—(Metallic) per oz.	15 00
Thallium (Metallic) per gram	.25
Titanium (Metallic) per gram	2.25
Thorium—(Metallic) per gram.	17.00
Tungsten—(Metallic) per oz.	2 5
Vanadium—(Metallic), per gm	22.00
Yttrium—(Metallic), per gram.	9.00
Zirconium—(Metallic), per oz.	65 00

Soda Ash—Carb., 48 % 100 lb.	1.22½@1 30
Caustic, 48 %	1.25
Soda Caustic, 60%	2 40
" " 70%	2.20@2.27½
" " 74-6%	2.26@2.27½
Sal, English, ₱ 100 lbs.	95
Sal, American, ₱ 100 lbs	90
Nitrate 100 lbs.	1.87½
Strontium—Nitrate ₱ lb.	9@9½
Sulphur—Roll, ₱ lb.	1¾
Flour, ₱ lb.	2
Crude Brimstone, 2s., ₱ ton.	19 75
Crude Brimstone, 3ds, ₱ ton.	19 00
Talc—Ground French, ₱ lb.	1¼@1½
Domestic, ₱ ton	$18@$ 0
c. i. f. Liverpool, ₱ ton.	£4 5
Vermillion—American, ₱ lb.	61
English, ₱ lb.	82@85
Vitriol—(Blue), Ordinary, ₱ lb.	5½@5½
Extra ₱ lb	7
Zinc Oxide—Am., Dry, ₱ lb.	4½
Antwerp, Red Seal, ₱ lb.	6@6½
Paris, Red Seal, ₱ lb.	6½@7
* Spot	

BUILDING MATERIAL.

Bricks—Pale, ₱ 1,000	3 25@3 75
Jerseys, ₱ 1,000	4 75@5 25
Up Rivers, ₱ 1000	5 00@5.50
Haverstraw seconds, ₱ 1000	5.50@5 75
Haverstraw firsts ₱ 1,000	5.75@6 00
Fronts, nominal, ₱ 1000,	
Croton	14.00@13.00
Wilmington	20.00@21.00
Philadelphia	@22.00
Trenton	@22.00
Baltimore	
Building Stone—Amherst freestone, ₱ cu. ft.	95@1.00
Brownstone, ₱ cu. ft.	1 00@1.35
Granite, rough, ₱ cu. ft.	45@1.25
Granite, Scotch ₱ cu ft.	1.00@1.15
Cement—Rosendale, ₱ bbl	.9 @1 10
Portland, American, ₱ bbl.	2 15@ 45
Portland, foreign, ₱ bbl	2 30@2.40
Portland, " special brands.	.45@2.75
Roman, ₱ bbl	2.65@2 85
Keene's coarse, ₱ bbl.	4 50@5.50
Keene's fine, ₱ bbl.	7.00@8.25
Slate—Purple and green roofing ₱ 100 ft.	7 50
Red roofing, ₱ 100 sq. ft.	15.00
Black roofing, ₱ 100 sq. ft.	4.75@5.75
Lime—Rockland common ₱ bbl.	1 00
Rockland finishing, ₱ bbl	1.10
St. John, com. and finish, ₱ bbl.	.90@.95
Glens Falls, com. and fi., ₱ bbl	.85@ .10
Labor Ordinary ₱ day	1.50@2 00
Masons, ₱ day	4.00
Plasterers, ₱ day	4.00
Carpenters, ₱ day	3.50
Plumbers, ₱ day	3.50
Painters ₱ day	2.50@3.50
Stonecutters, ₱ day	3.5 @4 00
Tilelayers, ₱ day	3.50@4.50
Bricklayers, ₱ day	4 00

THE ENGINEERING AND MINING JOURNAL will thank any one who will indicate any other articles which might with advantage be quoted in these tables or who will correct any errors which may be found in these quotations.